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THE CONTROL OF PROTEIN IN THE DIET[1]

EUGENE F. DU BOIS

From the Russell Sage Institute of Pathology in affiliation with the Second Medical (Cornell) Division of Bellevue Hospital

During the last fourteen years, we have had occasion to study various patients with many diseases in the Metabolism Ward of the Russell Sage Institute of Pathology in Bellevue Hospital. It has been necessary to give orders for their diets, specifying the number of calories, the amount of protein, and the proportion of fat and carbohydrate. This is easy except in the case of protein. I have never known how much to give and as I look over the old records, I see that I have prescribed 15 grams of food nitrogen (94 grams of protein) for all sorts of patients,—boys with typhoid, grown men with typhoid, patients with moderately severe diabetes, men with arthritis, erysipelas, tuberculosis, anemia, and exophthalmic goiter. Apparently I have paid little attention to the size of the patient. Now I am confronted by men trained in other clinics who adjust the protein very carefully, giving so-and-so many grams per kilogram of body weight, or such-and-such a percentage of calories in protein. I realized that my methods seemed antiquated and, therefore, when I was asked to prepare a paper on metabolism I seized the occasion of reviewing the subject of the amount of protein that should be included in the diet.

Of course, during all these years we have deliberately varied the protein ration for certain specific purposes. We have had the opportunity of studying the effects of extremely low protein diets in several diseases, and we have, at times, attained unusually high levels of nitrog-

[1] The Second Annual Nutrition Lecture of the New York Association of Dietitions. Read before a joint meeting of the Association and the Section of Medicine of the New York Academy of Medicine, January 17, 1928.

enous metabolism. The question at present is the amount of protein that should be given to our patients who are not the subjects of special metabolism studies.

Almost all of the physicians and dietitians of my time were brought up under the influence of Dr. Russell H. Chittenden, and very many of us had the good fortune to be his students. We were surrounded by the atmosphere of low protein diets and most of us still incline towards a low protein ration in disease. In the last few years, however, there have been evidences of a change in attitude. If I may use a Wall Street simile, there seems to be a rise in the protein stock market. It is, therefore, important at the present time to review some of the basic facts and estimate the security of our former position. Twenty years ago we were quite sure that we had worked out the best diets in many different conditions and the note of scepticism was conspicuously lacking. At the present time our diets are quite different, but the lack of scepticism is unchanged. I hesitate in trying to undermine your faith in the teachings of prominent investigators but I should like to point out a few changes that have occurred in the last two decades.

When I was a medical student, practically all the children in the city were fed according to the classical text-book of Dr. L. Emmett Holt, and all of us who heard his lectures remember vividly his emphatic presentation of the principles of infant feeding, as practiced in that year of 1905. The one point that he impressed upon us particularly was the danger of high protein in the milk. At this time the pediatricians were in general agreement on this point, and they were just as sure of the dangers of high proteins as we are of any of our present beliefs in nutrition.

You are all familiar with the revolutionary work of Meyer and Finkelstein, published in 1910. Finkelstein introduced a protein milk with a very high content of casein and a low content of whey. This has been slightly modified during the last fifteen years but still remains the standard method of treating the diarrhoea of infancy. We may summarize the facts as follows: Casein is not harmful. Protein tolerance is greater than fat or carbohydrate tolerance. Indeed, large quantities of the latter are more readily digested in the presence of a high percentage of casein. Casein also has a therapeutic action as well as a nutritive one.

Here was a complete change in the attitude of pediatricians towards protein. It would be hard for you to realize what a profound effect this made, unless you had been brought up under the emphatic statements of the older school.

Even more striking changes have been observed in our attitude toward diabetes. When I was a medical student we were using a diet which contained large quantities of protein and fat, and we gave these in liberal amounts in order to make good the calories lost in the sugar of the urine. This fashion prevailed until about 1914, when Dr. F. M. Allen caused a marked reduction in the mortality of this disease by introducing his system of fasting and low caloric diets. We began to fear protein and fat on account of their ketogenic effects. Then Newburgh and Marsh (1) began to obtain excellent results with a high fat diet in certain cases. Petrén, Joslin, and others advocated a low protein ration. The brilliant work of Woodyatt and Shaffer on the ketogenic: anti-ketogenic ratios clarified matters greatly, and shortly afterwards the discovery of insulin made it possible to use diets with moderate amounts of carbohydrate. Now, the work of Sansum and Geyelin with relatively high carbohydrate diets makes it look as if we might possibly adopt a new regime, that would have seemed perfectly incomprehensible a few years ago.

The diabetic diet has suffered so many radical changes during the last fifteen years that we cannot feel at all certain in regard to the standard diet of the present time. A man would, indeed, be rash in saying that there will be no more changes. It would almost seem as if we made an advance each time we adopted a diet diametrically opposed to the one that preceded it. What was it that Hippocrates said? "Experience is fallacious and judgment difficult."

Before discussing in detail some of the recent work on protein metabolism it may be well to review briefly the main facts concerning this important food stuff. The proteins are made up of combinations of amino acids, the so-called "building stones." Some proteins, such as those of meat, eggs, and milk are called complete in that they contain those amino acids which are essential to the mammalian organism. Others, such as the zein of maize are called incomplete because they lack one or more of these essential "building stones." When the proteins are broken down and metabolized most of the amino acids furnish to the organism both glucose and fatty acids. For purposes of calculation we usually assume that for every hundred grams of protein metabolized the body is furnished with about fifty-eight grams of glucose and forty-four grams of fatty acids. The absorption of the protein of the diet is almost complete unless the diet be rough or poorly cooked, but the intestinal tract is full of nitrogen-containing bacteria, and there is a considerable amount of nitrogen in the secretions that are poured into the

gut. In most calculations we assume that the nitrogen of the feces is equal to about ten per cent of the nitrogen of the food, but this is only an approximation. When protein is metabolized in the body its nitrogen is fairly promptly eliminated in the urine. We can, therefore, estimate the protein metabolism during twenty-four hours by adding the urine nitrogen and the feces nitrogen and multiplying by 6.25, which is the average percentage of nitrogen in food protein. Most investigators think in terms of food nitrogen, rather than food protein. It does not make much difference which we use, as long as we remember that 1.0 gram of excreted nitrogen indicates the metabolism of 6.25 grams of protein, and that 100 grams of protein in its metabolism furnishes 16 grams of nitrogen.

The nitrogen metabolism of the body depends chiefly on the amount ingested in the food, and we speak of a nitrogen balance when the intake and excretion are approximately equal over a period of several days. Such a balance, as we shall see later, may be established at various levels, perhaps at any point between $2\frac{1}{2}$ grams of nitrogen a day and 70 grams a day. Under favorable conditions of very low protein intake and liberal amounts of carbohydrate and fat we can attain in normal subjects a minimal nitrogen excretion of 2 or 3 grams a day. This is the so-called "wear and tear" quota of Rubner, and it is supposed to represent the breaking down of tissue cells, blood cells, etc. In fasting, the nitrogenous excretion is considerably above this level because some of the body protein is used as fuel.

When protein is given in large amounts a little of it is used for the "wear and tear" quota and the remainder is oxidized, furnishing body heat. Some of this heat is more or less wasted on account of the specific dynamic action of protein. I shall not attempt to discuss this in any detail but simply call your attention to the fact that as the protein metabolism increases after a heavy protein meal, the heat production rises, even in the resting organism, and the subject may give off 20 or even 50 per cent more calories than before. This heat is wasted unless the subject is in a cold atmosphere where he needs the extra warmth. There is some evidence to indicate that a long continued liberal diet may result in a "luxus konsumption" with a rise in the basal metabolism.

Before we discuss any experimental work on protein, we must remember that the level of protein metabolism is affected by the age of the subject, his previous diet and state of nutrition, the state of his health, the character of the protein given, the total caloric intake, the amount of carbohydrate in the diet, the mineral salts, water metabolism, vita-

mins, and perhaps several factors still incompletely recognized, such as the intestinal flora and such constituents as are found in liver extract. The work of the last decade has revealed the importance of several of these factors—the work of the present time seems to be disclosing more of them. It would be rash to say that no discoveries are to be made after the year 1928.

We can bring out certain relationships of the various food stuffs by means of a metabolism map (2) (3) (4), using a modification of the triangle introduced by Professor Irving Fisher. It is also possible to show on this map the respiratory quotient obtained by dividing the liters of the CO_2 produced in the combustion of a food stuff by the liters of oxygen consumed during the same period. At the lower right hand

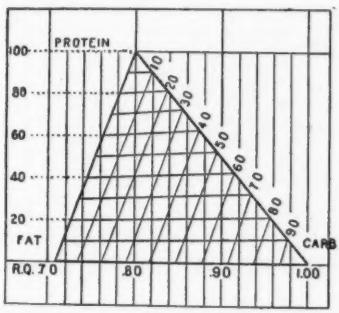

FIG. 1. METABOLISM MAP SHOWING THE PERCENTAGE OF THE CALORIES OBTAINED FROM PROTEIN, FAT AND CARBOHYDRATE IN RELATIONSHIP TO THE RESPIRATORY QUOTIENT

corner of the triangle we place carbohydrate, with an R.Q. of 1, at the left hand corner, fat, with an R.Q. of 0.707. At the apex of the triangle is protein with an R.Q. of 0.801. If a man metabolized nothing but carbohydrate, we would place him at the lower right hand corner of the triangle. If he metabolized nothing but fat, at the lower left hand corner. Since it is impossible for the human organism to exist exclusively on any one food stuff, intermediate positions must be employed. These can be determined exactly by means of respiration experiments, if we at the same time measure the urinary nitrogen and from this calculate the percentage of calories derived from protein.

In figure 2, I have plotted the position of my own metabolism in a number of calorimeter experiments made 15 to 18 hours after the last

meal. You will note that I was deriving about 18 per cent of the calories from protein, 30 per cent from carbohydrate, and the remainder from fat.

The effect of a large ingestion of glucose on my metabolism is shown in figure 3. During the first, second and third hours about 75 per cent of the calories were derived from carbohydrate, and in the fourth hour some of the carbohydrate was transformed into fat. On this same chart is shown the effect of the administration of a very large protein meal to an achondroplastic dwarf. At the beginning of the meal he was deriving about 30 per cent of his calories from protein. Four hours later, 64 per cent came from this source, and this is perhaps the highest protein level observed in man.

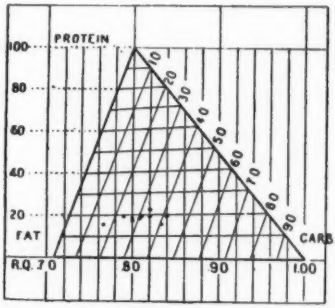

FIG. 2. THE METABOLISM MAP WITH DOTS SHOWING THE POSITION OF THE METABOLISM OF A NORMAL MAN 15 TO 18 HOURS AFTER THE LAST MEAL

The effect of fasting is shown by Benedict's subject, Levanzin (5). At the end of six days fast there was a slight rise in the protein metabolism which furnished about 17 per cent of the calories on this day. The remaining calories came from Levanzin's body fat. This is also shown in figure 4.

You will note that the protein metabolism rose sharply during the period when the glycogen stored in his liver was being exhausted. After that it became more or less stationary.

We can put on this map the position of the average dietary of some of the races of man.

At the extreme right comes the Bengali, with a very low protein dietary and a high carbohydrate ration. *E* represents Voit's European

standard, *M*, the diet consumed by Maine lumbermen, and *S*, the Eskimo diet which we shall discuss later.

Figure 6 is a more comprehensive map, giving certain positions outside the triangle. Thus it is possible to have carbohydrate converted into fat with the respiratory quotients over 1.0. It is seldom that we find protein converted into fat. In severe diabetes the carbohydrate from the protein may be excreted in the urine, giving us very low quotients. In such cases, the proportion of carbohydrate oxidized is so small that the fatty acids are incompletely consumed and an excretion of the ketone bodies results. This phenomenon is not confined to diabetes, and we encounter a ketosis in practically all conditions in which

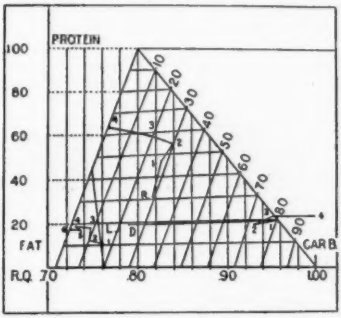

FIG. 3. THE CHANGES IN THE METABOLISM OF 3 EXPERIMENTAL SUBJECTS

D is a normal man studied for 4 hours after the ingestion of glucose. *R* is a dwarf studied 4 hours after a very large protein meal. *L* represents Benedict's fasting man Levanzin during the first 6 days of a fast.

the carbohydrate metabolism is very low: for instance, starvation, or a low carbohydrate dietary. The threshold of ketosis, as determined by Woodyatt and Shaffer, is represented on the triangle by the line *KA*. You will remember that the fasting man, Levanzin, travelled farther and farther to the left of this line, and he, therefore, exhibited a ketosis, though not as marked a one as is found in severe diabetes. The dwarfs after a high protein meal, and the Eskimos, probably did not have ketosis because they were deriving large amounts of glucose from the protein metabolized.

During the last fourteen years, we have made many metabolic studies along the lower portion of this line, representing the threshold of ketosis, and have found in almost all conditions that patients begin to show ace-

tone as they cross to the left of this line. Recently Dr. Edward Mason (6), of Montreal, has published a very significant series of observations on obese patients who are metabolizing mixtures containing a much

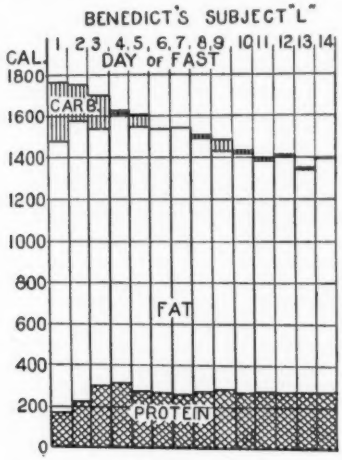

FIG. 4. BENEDICT'S FASTING SUBJECT LEVANZIN. MATERIALS OXIDIZED DURING THE FIRST 14 DAYS OF FAST

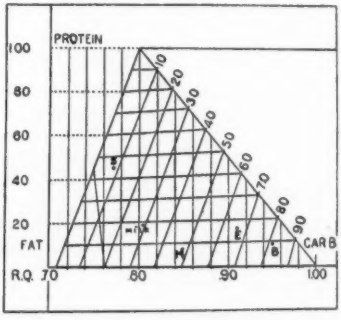

FIG. 5. THE POSITION OF VARIOUS DIETARIES ON THE MAP

B represents the Bengali low protein, high carbohydrate diet. *E* represents Voit's European standard, *M* the diet of Maine lumberman, and *S* the Eskimo diet.

higher proportion of fatty acid to glucose than is represented by the equi-molecular ratio of Shaffer or the $\frac{FA}{G}$ ratio of 1.5 described by Woodyatt. Mason's obese patients did not show ketosis during long periods

on this diet. We have recently confirmed this observation on one man with marked obesity. The explanation of the phenomenon is not clear and we may be obliged to revise our opinions regarding this one point which we thought had been definitely settled.

There is a large unexplored portion of this metabolism map, or, perhaps I should say, a large portion which has never been explored by man. We know very little about the upper portion of the ketosis line, or about the upper portion of the triangle when protein furnishes more

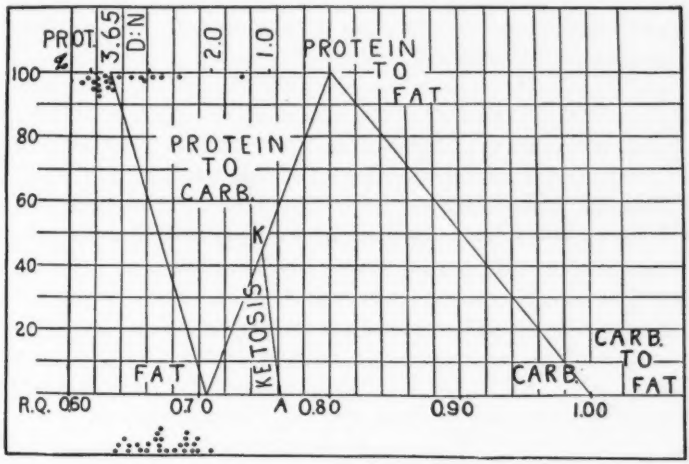

FIG. 6. ZONES OUTSIDE OF TRAINGLE

To the right the zone of high respiratory quotients found when carbohydrate is transformed into fat. To the left of the triangle the zone of severe diabetes found when the glucose derived from protein is being excreted in the urine. The line *KA* represents the threshold of ketosis. In position to the left of this line there is usually an excretion of ketones in the urine.

than 60 per cent of the calories. At the present time we are engaged in a study of these two regions.

The lowest level of the triangle is represented by the nitrogen minimum. If we administer a diet that contains an adequate number of calories and no protein, or else an amount of protein less than 10 grams a day, for a considerable period of time, with a normal subject, we attain a minimal nitrogen excretion which represents the "wear and tear" quota of Rubner.

I shall not attempt to give all the figures for nitrogen minima obtained

from normal subjects. These have been published in tables by McCann (7) and Smith (8).

Klemperer, in 1889, found a minimum of 2.51 grams of nitrogen in the urine, or 0.038 gram of nitrogen per kilogram of body weight, and the total nitrogen excreted was 3.53 grams. Siven, in 1898, noted as low a level as 1.78 grams urinary nitrogen; R. A. Kocher, 2.9 grams; Folin, 2.6; Karl Thomas, 2.98; Smith, 1.58 grams urinary nitrogen, or 0.024 gram per kilogram. The excretion of 1.58 grams of nitrogen represents the combustion of 9.9 grams of protein per day. The feces nitrogen at this time was 0.91 gram per day, and the total represents a combustion of 15.56 grams of protein.

Deuel, Sandiford, Sandiford and Boothby (9) studied a man for fifty-four days on a diet of 1800 calories practically protein free. The lowest nitrogen excretion was 1.57 grams per day. While he was on a very low level of nitrogen excretion they gave thyroxin and increased the basal metabolism. There was a temporary increase in the nitrogen excretion which was probably due to the removal of the so-called "deposit protein," but after this the nitrogen fell almost to its original level.

Karl Thomas (10) made a long and instructive experiment on himself. After fasting for several days, he took an amount of food nitrogen equal to that which he was excreting, but was unable to obtain balance. When he added fat to his diet, the nitrogen excretion was depressed, but not nearly to the low level that he obtained when he went on a carbohydrate ration. Muscular work did not increase nitrogen elimination. The addition of high class protein, in small divided doses, the total being equal to the "wear and tear" quota, caused no increase in the nitrogen excretion. When he changed to an exclusive protein diet with over 80 grams of food nitrogen there was a slight lag in the urinary nitrogen but it attained the high level of 77 grams in one day.

There is a difference between the nitrogen minimum and the lowest level of nitrogen balance. The minimum is obtained on diets that contain about 1 gram of food nitrogen, or less, per day. In most nitrogen balance experiments at a very low level the figures are distinctly above the nitrogen minimum.

H. C. Sherman (11), in 1920, gathered the data from 109 experiments by many different observers. Calculating them all on the basis of a 70 kgm. subject, he found that the average was 42 grams of protein per day, or 0.6 gram of protein per kilogram of body weight. This low protein intake maintained the subjects in nitrogen equilibrium. Of the

109 experiments, 76 fell between the limits of 30 and 50 grams of protein for the 70 kgm. man, the average being 40.6.

Rose and MacLeod (12), in studying the maintenance values for the proteins of milk, meat, bread and milk, and soy bean curd obtained nitrogen balance with only 0.5 gram of protein per kilogram of body weight. They found very little difference in the efficiencies of these proteins. Time does not permit a discussion of the relative values of the different proteins, but these have been treated exhaustively by Mitchell (13).

We can see, therefore, that it is possible to keep men in nitrogen balance on about 40 grams of protein a day, a figure which is one-third of the ordinary dietary standards.

In recent years there has been a steadily growing interest concerning the effects of high protein diets on animals and on men. Our attitude towards animal experiments is at times curiously illogical. For instance, in my own case, when the work done a few years ago seemed to show that a high protein diet was very harmful to rabbits and rats, I came to the conclusion that these small animals afforded no evidence of value in regard to man. Now that the more recent work on rats has supported certain preconceived notions of my own, I am beginning to think that the small animals are a great aid in these studies. After all, we cannot be very greatly concerned over deleterious effects of a high protein diet in rabbits and rats when we contrast these animals with purely carnivorous wolves and lions.

L. H. Newburgh (14), of Ann Arbor, has presented a great deal of evidence in regard to the harmful action of high protein on the kidneys and arteries of rabbits. In 1919, he administered eggwhite and large amounts of casein and produced acute and subacute nephritis. No such lesions were produced by adding urea to the diet. Two years later, Squier and Newburgh (15) administered high protein diets to normal men and observed an increase in the red blood cells of the urine. When they gave a similar diet to patients showing kidney damages the red blood cells increased and there was either the appearance of, or an increase in the albuminuria. Blood pressure was not affected. Newburgh concluded that a high protein diet in man is a renal irritant. We must remember, however, that red blood cells occur in the urine of normal subjects.

Newburgh and Clarkson, in 1923 (16) (17), gave rabbits high protein diet for six or more months and produced a chronic nephropathy and atherosclerosis of the aorta and several other arteries. Recently New-

burgh and Marsh (18) have found that some of the amino acids are nephrotoxic. Polvogt, MacCollum and Simmonds (19) gave young rats a diet containing 31 to 41 per cent protein and examined the kidneys after about 400 days, finding lesions of considerable severity. They make the following sweeping statement: "There is apparently no cause other than the excretion of excessive amounts of the end-products of protein metabolism to which we can ascribe this renal damage."

Our data does not permit of the possible criticism that defects in the diet other than protein may have been partially or indeed solely responsible for the kidney lesions observed.

Evans and Risley, in 1925 (20), also obtained nephritic changes. Drummond, Crowden and Hill (21), and Reader and Drummond (22), in studying young rats, noted a subnormal rate of growth and on autopsy observed hypertrophy of the kidneys, but no damage to the tissue. Moise and Smith, in 1927 (23), working with rats, removed one kidney, producing an hypertrophy in the remaining organ. When they gave the animals a standard food the single kidney was normal, but when they gave a high protein ration actual glomerular and tubular lesions were observed. All of this evidence would point to the bad effect of high protein were it not counterbalanced and probably more than counterbalanced by evidence on the other side.

The most significant study is that of Osborne and Mendel, in 1924 (24). They administered to white rats diets containing much protein, some fat, and absolutely no preformed carbohydrate. Young rats grew normally on this diet and although the kidneys were hypertrophied to about twice their normal weight, microscopic examination failed to disclose inflammation or degenerative changes. Their experiments indicate that in so far as carbohydrate is required for the intermediary metabolism, particularly for the metabolism of fats and the development of energy in muscular contraction, it can be furnished endogenously throughout the period of growth to adult size. This study was continued with the coöperation of Park and Winternitz, and more details regarding the kidneys were obtained. The hypertrophy was a characteristic feature of the animals in which the intake of protein exceeded about one-third of the food fuel of the ration. Urea fed in amounts equivalent to that derived from effective quantities of protein failed to bring about an equally noticeable renal enlargement. Maclean, Smith and Urquhart (25), giving high protein diets to rabbits, found that if they administered fresh vegetables at the same time there was no deleterious effect on the kidneys. Jackson (26), in Boston, gave very high

protein diets over periods representing one-third of the rat's life and failed to prove any recognizable nephritis, although there was a considerable amount of hypertrophy of the kidneys. Miller (27), and also Addis, McKay and McKay (28) obtained similar results. Much more work has been done on this subject but it is impossible to quote it all. One obtains the impression that kidney lesions and failure to grow obtained by some investigators were due not so much to the high protein ration as to unsuitable animals or mixtures of food.

This animal work is all very interesting, but we are now concerned with the effects on man. What is the effect of a high protein diet on the human organism? Our interest in this subject has been greatly stimulated by the report which Dr. Clarence W. Lieb (29) has made on the condition of the Arctic explorer, Dr. Vilhjalmur Stefansson. He points out the fact that out of eleven and a half years in the polar regions, Dr. Stefansson lived about nine years on a meat diet; that is, meat and water, and for at least six years of this nine, entirely without salt. The longest continuous period without food other than meat was about nine months. On this diet Dr. Stefansson was in excellent health except for an attack of typhoid fever with pneumonia and pleurisy, during which he treated himself very successfully on a diet of frozen raw fish and later, large meals of caribou meat and fish, sometimes boiled, and sometimes raw and slightly frozen. In 1922, when Dr. Lieb made his examination, the explorer was in perfect physical condition, his systolic blood pressure was 115 and diastolic, 55. Dr. Lieb also reports on two other patients of his who had lived on an exclusive meat diet for several years and had remained in excellent health.

Stefansson (30), himself, made an interesting discovery in regard to the effect of a meat diet on scurvy. Three of the explorers, against Stefansson's advice, had abandoned meat diet and taken to white man's food from some stores of groceries. They developed scurvy, but promptly recovered when given a continued diet of meat, sometimes raw, sometimes cooked. It is interesting to note that scurvy is unknown among the Eskimos who live on an exclusive meat diet but that it is quite common among those who work for white men and live on the white man's food.

An important study of the diet and metabolism of the Eskimos was published in 1913 by August and Marie Krogh (31) two of the most experienced investigators in the field of metabolism, who went to Greenland and after many difficulties established a respiration chamber on the seashore. They report that the normal diet of the Greenland Eskimos contains an excessive amount of animal protein (280 grams), much

fat (135 grams), and a very small quantity of carbohydrate (54 grams), of which more than half is obtained from the glycogen of the meat. The eskimos in Greenland studied by Krogh are probably among the most exquisitely carnivorous people on the earth, living almost exclusively on meat and fish, and going for long periods without vegetable food. The only indigenous food plants are whortle berries, *angelica officionalis* and a few seaweeds. Some of them eat the half-digested plants found in the stomach of the reindeer. Their chief and favorite food is the seal and they eat not only muscle but also liver and blood and some of the blubber. When the opportunity of the chase affords, they eat reindeer, walrus, and whale. The skin of the young whale is an especial delicacy and is found to contain large amounts of glycogen. It also has a reputation as an anti-scorbutic. They also eat birds and fish. Krogh says that the few who come in contact with the white men obtain cereals and canned foods. The Eskimos are perhaps the most peaceful and unwarlike race in the world. The so-called uric acid diseases are said to be practically absent.

The Kroghs put the Eskimos in a respiration chamber in pairs and observed the effects of various diets. They noted the maximum intake in one day of 1804 grams of boiled seal meat, containing 85 grams of nitrogen and 218 grams of fat, but this, they say, is far below the quantities recorded for Eskimos in the free state. There seemed to be a considerable delay in the metabolism of the protein and excretion of nitrogen, only about 60 per cent of the nitrogen after these large meals being excreted in the first twenty-four hours. Thus, the maximum quantity of nitrogen found in the urine of one day was 53 grams, but several of the subjects excreted more than 3 grams of nitrogen per hour. The respiration experiments showed that they often derived more than 40 per cent of their calories from protein, and one pair, in an eight-hour period, obtained 64 per cent from this source. Another pair, over an entire twenty-four-hour period, derived approximately 47 per cent of the calories from protein. They did not observe any very great specific dynamic action of protein, but the experiments were not planned to study this phenomenon.

Dr. Stefansson (32), in writing of the Copper mine district, says that the one vegetable of some importance among the Copper Eskimos is a parsnip-like root, the *Polygonum bistortum*. In a recent letter to me he says:

> There was a great individual difference among the Copper Eskimos as to the eating of the contents of caribou stomachs. Some seemed fond of them

and others noticeably avoided them. In many cases persons, both men and women, would take one or two mouthfuls for politeness when a dish of caribou contents was offered, and then excuse themselves, saying either that they were not hungry or stating outright that they were going to eat meat by preference. Children sometimes played at eating the stomach contents as something halfway between our game of mud-pies and the habit farm boys used to have of roasting potatoes and eating them half-raw, not because they liked them but as a sort of game.

Dr. Stefansson continues:

I feel sure that there was no Eskimo in Coronation Gulf in my time whose diet consisted as much as 2 per cent of vegetable foods during the year. One-half of one per cent would be more nearly my estimate of the maximum vegetable consumption. Some of the people ate no vegetables at all, not even tasting any berries. You never had to eat berries from politeness, for they were never offered as a dish at meals."

Stefansson, in speaking of the diet of the Mackenzie Eskimo, says that during several weeks of the sun's absence in winter no cooked meat was eaten by any one except those to whom uncooked food was for one reason or another taboo. During the rest of the year most of the food is cooked. Frozen fish is an important article of the diet. From a white man's point of view, their table manners are awful, and I hesitate to enumerate the parts of the animal eaten, or the degree of decomposition that they seem to prefer in certain foods. Stefansson describes one custom which is of great interest to immunologists. In the Mackenzie Delta district, where eggs are plentiful, there is a taboo against eating them, but some of the parents test the immunity of their children, and if no illness results, these individuals may continue to eat this food. If for any reason a child becomes ill after the egg test, eggs are taboo for the rest of his life.

Here then we have an ideal human experiment on large numbers of Eskimos. For our purposes it is unfortunate that we are not able to obtain an autopsy on every Eskimo who dies. Our knowledge of their diseases is necessarily incomplete and the Arctic explorers give us the general impression that the uncivilized Eskimos never die except from old age or accident. This, of course, is extremely improbable, but we can be fairly sure that before the white man came they were a vigorous, hardy race, with relatively little disease.

Dr. William A. Thomas (33), of Chicago, has reported on the health of the carnivorous Eskimos of Northern Labrador and Greenland, as

observed by him during the MacMillan Expedition of 1926. He studied a large number of Eskimos living on native food, and consulted the Danish physicians who worked in that region. The blood pressures observed by Thomas were not high. Among 142 adults, between the ages of forty and sixty, the average blood pressure was 129 systolic and 76 diastolic. Only eight of the group showed systolic pressures above 140, the maximum being 170. Twelve of the group showed albumen in the urine, but of these only three had systolic blood pressures above 140. Edema of undoubted nephritic origin was seen in only one case. Critical examination of records in 588 hospital cases showed on physical examination edema due to nephritis in seven cases and death from cerebral accidents and nephritic coma in five. Unfortunately the total number of deaths was not counted. Thomas believes that under their strenuous conditions of life an exclusively carnivorous diet does not dispose to renal or vascular disease. Among the carnivorous Eskimos there is neither scurvy or rickets, but these diseases are prevalent in Labrador when the natives eat the white men's food.

The Eskimos are not the only carnivorous race. Our own Indians of the plains seem to have depended very largely on buffalo meat. As Catlin (34) says, in 1848, speaking of the inhabitants of upper Missouri,

> The buffalo meat, however, is the great staple and "staff of life" in this country and seldom (if ever) fails to afford them an abundant and wholesome means of subsistence. There are, from a fair computation, something like 250,000 Indians in these western regions, who live almost exclusively on the flesh of these animals, through every part of the year.

Similar conditions were found in the Pampas of South America where large herds of wild cattle roamed in the early part of the last century. Sir Francis Bond Head (35), in his "Rough Notes Taken During Some Rapid Journeys Across the Pampas and Among the Indes," (second edition, 1826) says of the inhabitants of this region:

> The Indians of whom I heard the most were those who inhabit the vast unknown plains of the Pampas, and who are all horsemen, or rather pass their lives on horseback. The life they lead is singularly interesting. In spite of the climate which is burning hot in summer and freezing in winter, these brave men, who have not yet been subdued, are entirely naked, and have not even a covering for their head. They live together in tribes, each of which is governed by a cacique; but they have no fixed place of residence. Where the pasture is good, there are they to be found until it is consumed by their horses, and they then instantly move to a more verdant spot. They have neither

bread, fruit, nor vegetables, but they subsist entirely on the flesh of their mares.

Quoting again from the fourth edition (1846) the author says, "With respect to provisions, we were told (truly enough) that there is little to be had on the Pampas but beef and water." Sir Francis got tired at first with the constant galloping and was forced to ride in a carriage after five or six hours on horseback. He says:

> But after I had been riding for three or four months and had lived upon beef and water, I found myself in a condition which I can only describe by saying that I felt no exertion could kill me. . . . . This will explain the immense distances which people in South America are said to ride, which I am confident could only be done on beef and water.

We may contrast the Eskimo with the Bengali on his very low protein ration. The details of his dietary are lacking, and it is possible that it contains an insufficient amount of some other vital factors. McCay, in his book on "The Protein Element in Nutrition" (36), seems to be convinced that the poor condition of the Bengalis as a race is due to the protein ration, and he points out very clearly that the neighboring races with higher protein food are much better physical specimens. Among the different groups of the natives of that part of India there seems to be a close relation between physical and mental well being and the amount of protein in the ration. The best tribes, such as the Sikhs, consume large amounts of protein. The Bengalis seem to be a miserable race and McCay speaks of the great prevalence of kidney disease in Bengal despite the very low level of nitrogenous interchange exhibited by the great mass of the population, and this in a country where scarlet fever is unknown. The statistics that he quotes are not any more convincing than most statistics regarding nephritis, but they bear out his main contention. McCay believes that these ill effects are to be expected when a tribe or race subsists on the lower limits of protein interchange. He says,

> The lessened expectation of life, decreased resistance to disease and infection, earlier onset of the marked evidences of tissue degeneration and senility, are conditions that would be anticipated in a people who exhibit such slackness, want of vigour, tonelessness, general slowness of reaction, and other physiological attributes difficult to describe, detect, and measure, which form some of the distinguishing characteristics of the working population of Bengal.

When we come to the protein metabolism in disease, we find in general that there is little or no increase in the "wear and tear" quota in many of the chronic conditions or those that are less severe in their clinical and metabolic phenomena. On the other hand, there is usually a great increase in the protein metabolism in those diseases that are accompanied by the symptom complex designated by clinicians as toxemia. In this group typhoid fever is the disease that has been most carefully studied. It has long been known that patients with typhoid will sometimes excrete twice as much nitrogen as the average normal person. Thus Shaffer and Coleman (37), and Coleman and Du Bois (38), have recorded many typhoid patients excreting 20 to 25 grams of nitrogen a day, even on high caloric diets low in protein. They were unable to attain nitrogen balance until they administered in the diet about twice as many calories as the patients actually produced. R. A. Kocher (39) in paratyphoid fever could not depress the nitrogen excretion below 15 grams at the period of high temperature.

Similar high levels of protein metabolism have been noted in erysipelas. Kocher found an excretion of 9 to 20 grams of nitrogen on a low protein, high caloric diet, and Grafe (40), as well as Coleman, Barr and Du Bois (41), confirmed these results.

The protein destruction seems to be high in almost all the severe infections, such as pneumonia, acute rheumatic fever, typhus, etc. In pulmonary tuberculosis, however, McCann (7), and McCann and Barr (42), were able to reduce the urinary nitrogen to 2.5 and 4.5 grams per day, figures only slightly above those found in normal individuals.

There is said to be a toxic destruction of protein in some cases of malignant disease, but Lauter and Jenke (43) have observed nitrogen excretions under three grams per day in two cases of carcinoma. One patient with carcinoma of the liver and lung excreted from 3.0 to 3.8 grams a day. Two patients with chronic leukemia were reduced to a minimum of about 2.7 grams per day, and one with lymphogranuloma was between 2.2 and 3.5.

In exophthalmic goiter there does not seem to be any measurable increase in the endogenous protein metabolism, but, of course, it is necessary to give a large number of calories in the food in order to attain nitrogen balance. Lauter and Jenke obtained a minimum excretion of 1.47 grams of nitrogen per day in a patient with exophthalmic goiter; in another case, 2.2 grams per day.

In severe diabetes the protein metabolism is complicated by the fact that glucose and ketones derived from the protein may be excreted

instead of oxidized. Therefore, when we encounter high nitrogen excretion it may not signify that more than a small percentage of the calories have been furnished by the protein. Most of the calories have been wasted. One example of this is the classical case of Cyril K., studied by Geyelin, at the Presbyterian Hospital, and by us (44) at Bellevue Hospital. For a period of seven days he excreted over 30 grams of nitrogen per day, on a very low diet. Petrén (45) (46) (47), on the other hand, has not encountered many diabetics with high protein metabolism. As I have said before, the older diets in diabetes contained a liberal amount of protein. Klemperer, Newburgh and Marsh, and Petrén have advocated a low protein ration in diabetes, and most students of this disease in Europe and America have followed their example. Nitrogen balance can be maintained quite readily on two-thirds of a gram of protein per kilogram of body weight, provided the patients metabolize enough carbohydrate and fat. Petrén, writing in 1927 (45), says that he has been using this very low protein diet for more than fifteen years and that he often finds a nitrogen excretion of 2 or 3 grams per day, and sometimes for short periods even lower than 2 grams. In some of his cases he says that he obtained nitrogen balance on one quarter of a gram of protein per kilogram of body weight. He does not advocate a strenuous limitation of protein in older patients with only moderate increase in the blood sugar level, and does not recommend it as a continuous diet, but merely as a means of treating the patient for a limited period of time. To me, the most interesting thing in Petrén's monograph is his demonstration of the fact that he can obtain just as low a nitrogen minimum in diabetics as in normal people. He points out that this was accomplished with a very low carbohydrate intake, often under 40 grams, but usually from 50 to 70 grams per day. He says that he has even done this when the total caloric intake was very low. We must remember, however, that the basal metabolism of diabetics is sometimes at such an exceedingly low level that one calorie or one gram of carbohydrate assumes twice as much importance as in the case of a normal man.

McClellan and Hannon (48), working in the Metabolism Ward of the Russell Sage Institute of Pathology, have obtained similar results in a patient studied in great detail over a period of one hundred and six days. They observed only a slight increase in the nitrogen excretion when they produced a ketosis by lowering the carbohydrate metabolism and increasing the fat isodynamically. Petrén is correct in his statement that the sparing influence of fat on the quantity of metabolized nitrogen

is greater than has been assumed. Most of us are not convinced by his theory, that in the severe diabetic organism there is a certain threshold of nitrogen metabolism, so that when we rise above this threshold an acidosis results, but if we maintain the nitrogen metabolism below this threshold the acidosis will disappear. Petrén believes that the administration of fats in amounts lower than three hundred grams does not cause an acidosis. The one thing that is lacking in the magnificent studies of the late Professor Petrén is the control of what actually happens in such cases, by means of respiration experiments. Richardson (49) (50) (51) (52) and his associates, Mason, Ladd and Levine, in the Russell Sage Institute of Pathology, have emphasized the great differences that may exist between the food administered and the materials oxidized. It is quite possible to give large amounts of fat without increasing the fat metabolized. It can be deposited in the tissues. Gephart, Aub, Du Bois and Lusk cautiously tried the effect of a high protein diet on the patient Joseph D. with moderately severe diabetes. When they increased the food nitrogen from 15 up to 25 grams, and at the same time increased the fat ration, there was a marked loss of carbohydrate tolerance. Unfortunately, an alveolar abscess was developing at this time and it may have been partly responsible for the change. Much clearer results were obtained by Wilder, Boothby and Beeler (53), on their classical patient, Bessie B. The case was one of almost maximum severity and her condition seemed to be much worse on a high protein diet than on a low protein. In two of the periods when she was on a high protein ration the maximum D:N ratio of 3.65 was observed. Evidence at the present time, therefore, is in favor of a restriction of protein in severe diabetes.

When we come to nephritis we find that clinicians throughout the country are restricting the protein to a very low level in practically all the cases that are supposed to have nephritis or high blood pressure. They do this because the excretory power of the kidney is more or less damaged and they are afraid of over-taxing these organs. I remember this restriction in its most severe form about twelve or fifteen years ago. Clinicians were giving a protein free diet under the impression that they would in this manner attain a protein free metabolism. Of course, this is ridiculous because it could not reduce the protein below the "wear and tear" quota. As far as I know, the minimal nitrogen metabolism in nephritis has not been determined in many cases. The technic is difficult because the nitrogen representing the protein metabolized may be stored in edema fluid, or retained as non-protein nitrogen of the

blood, or, as Foster has pointed out, retained in large amounts in the tissues. Nevertheless, we have fragmentary information on this subject, some of which I have just discovered in a piece of work that Dr. Aub and I (54) published in 1917, dealing with the respiratory metabolism in nephritis. Two patients with chronic parenchymatous nephritis and acute exacerbations and one man with chronic interstitial nephritis were receiving in the food about five grams of nitrogen and enough calories to cover the requirement as determined from calorimeter experiments. If we select periods when their weights were stationary and there was no increase in the non-protein nitrogen we find negative balances amounting on many days to 3 to 7 grams. This seems to be good evidence that the nitrogen minimum in these cases was over 5 grams a day, which is distinctly higher than normal.

In 1916, Mosenthal and Richards (55) studied six patients with chronic interstitial nephritis of moderate severity, first on a low protein diet with 3 to 4 grams of nitrogen, and then on a high protein diet with 21 to 31 grams. The nitrogen balance which had been negative on the low protein turned into a markedly positive balance on high protein. The non-protein nitrogen rose slightly but not nearly enough to account for the retention. They point out that a positive nitrogen balance in nephritis is not necessarily an indication of the inability of the kidney to excrete nitrogen. I suspect that most of our nephritic patients are in a condition of partial nitrogen starvation and that their bodies are eager to replenish these depleted stores, just as in the case of starved normal men, or convalescent typhoid patients. Epstein, in 1917 (56), pointed this out in regard to chronic parenchymatous nephritis. Some of his patients with marked albuminuria lost 18 to 26 grams of protein a day. The serum proteins were naturally diminished. In this type of disease he has obtained good results on a diet low in fats but with high protein (120 to 240 grams). When this diet was first introduced it was a great shock to all who believed in the low protein ration.

Peters and Bolger (57) more recently made some careful and extensive studies of this difficult question, on six patients with edema and albuminuria but with little nitrogen retention, finding the protein katabolism 0.5 to 0.7 gram per kilogram of weight per day. They believe that in the early and acute stages of the disease the nitrogen metabolism may be high, and point out the possibility of an increased metabolism in nephritis associated with emaciation. These investigators confirm Mosenthal's statement that some patients when given an excess can store large amounts of protein.

In this brief review we have discussed only a small fraction of the important phases of the protein problem. Our knowledge is incomplete, but we have learned something if we have recognized this fact. Unless I am greatly mistaken, we are going to pay more attention in the future to the dangers of partial protein starvation in chronic disease.

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RESULTS OF DIETARY AND HYGIENIC CONTROL OF TEN NON-GAINING PREVENTORIUM CHILDREN

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It is a common experience that the majority of underweight children gain at a satisfactory or even a spectacular rate when put on the controlled life and dietary of a preventorium. There are usually, however, a certain percentage of the children who fail to respond to this general treatment and are therefore a source of anxiety to the staff. This study undertook to investigate the problem with a group of ten such difficult gaining children in Ridge Farm Preventorium.[1] The purposes were: (1) to study the causes of the failure to gain of these 10 children; (2) to determine by experimentation what alterations of diet and of activities were necessary in order to induce the desired gains; and (3) to formulate if possible from these results suggestions for the Preventorium to follow in further treatment of these and similar cases.

METHOD OF WORK

The worker was able to spend week-ends at the Preventorium for a period of five weeks. These five week-ends of three days each were used for a quantitative study of the diets and other significant factors; and the staff of the institution continued the work, in so far as they were able to do so, for the remainder of the week. The first three days were used as a control period. For each child, the diet, the physical condition, the activity, and entire scheme of living were investigated. Then on a basis of the findings an attempt was made to alter the program so as to bring about the desired improvement in weight and general physical condition.

The dietary study followed in general the individual method as used by Roberts and Waite (1). All ingredients of cooked dishes were weighed in the kitchen, and also the finished product. From these the food value per gram of each food could be computed. The amounts of all foods

[1] A preventorium in Deerfield, Illinois, which gives nutritional care to some 30 under nourished girls from 8 to 16 years of age.

eaten by each child were then weighed at mealtime. In order to save time during the serving of the meal, first servings of foods such as milk, bread and butter, and desserts were weighed in advance, each food being labelled with its weight. Thus only the warm foods, as potatoes, meat, vegetables, and second servings of all foods remained to be weighed at the table. This process was simplified by use of a scale on which the pointer may be turned to zero, thus obviating the necessity of subtracting the weight of dishes. The weight of each serving of food was recorded on a slip of paper and put on the plate. The children saved all slips until the close of the meal, when they were collected and the results recorded. From these daily records the protein, fat, carbohydrate, total calories, calcium, phosphorus, and iron intake of each of the girls for each meal in each three-day period were computed.

Since the amount and kind of activity are factors entering into the determination of food requirements of children, a check was made of the nature and amount of exercise, of work, of school duties, and the number of hours spent in sleep and in resting. The physical condition of the children was also studied by means of (1) an examination of the medical charts on file in the office; (2) the weighing of each child on Saturday following the rest period, and again on Monday, the third day of the period, the weight being recorded and charted; (3) a urine analysis for each child, testing for acetone, for sugar, and for albumin. By all these methods a fairly complete picture of each child's condition and method of living was obtained.

FINDINGS FOR CONTROL PERIOD

The results of the above procedure for the control period showed that the diets were qualitatively good, the mineral, vitamin, and protein content being generous. All were well above the standards of 1 gram each for calcium and phosphorus as recommended by Sherman and Hawley (2), the average for the group being 1.8 grams of calcium and 1.9 grams of phosphorus. The iron averaged 0.0130 gram, or close to the adult standard. The high calcium and phosphorus are explained by the large quantities of milk used in the diets. The daily milk order allowed for over a quart per child per day, and many children were drinking more than this amount, some as much as 1½ to 2 quarts. This group of 10 girls averaged 1⅓ quarts daily as a beverage, in addition to that in cooked foods.

The protein was also generous, ranging from 76 to 106 grams with an average of 89 grams, and the amount per kilogram ranging from 2.1 to 3.1

grams with an average of 2.7 grams. The diets were about as high in fat as one would care to have them, the distribution of protein, fat, and carbohydrate averaging 13, 40, and 47 per cent respectively, as compared with the accepted standard of 15, 35, and 50 per cent.

Although all these essential constituents were well provided in the diets, the total calories appeared low when compared with Holt's standard (3) for total calories and per kilogram. Table 1 shows that 4 of the children were eating less than their requirements on the basis of their own weight; but on the basis of the weight they should be (average for height and age), 7 out of 10 were taking less than their requirement, one being 24 per cent below. This deficit was due chiefly to a lack of consistency

TABLE 1

Comparison of food consumption of control period with standards

NAME	AGE	WEIGHT		CALORIES PER KILOGRAM	CALORIE-STANDARD		CALORIE CONSUMPTION, PERIOD I	EXCESS OR DEFICIT	
		Observed	Average height and age		Per observed weight	Per average weight		Actual weight standard	Average weight standard
		kgm.	*kgm.*						
Carol	8	26	29.1	76	1,976	2,211	2,605	+31	+17
Sybil	10	24	26.8	77	1,848	2,063	2,090	+13	+1
Frances	11	29.4	29.5	80	2,352	2,360	2,457	+4	+4
Lillian	11	31.4	33.6	80	2,500	2,688	2,240	−10	−16
Ariel	11	38.1	39.0	80	3,040	3,120	2,824	−7	−9
Jennie	12	26.9	30.4	80	2,152	2,432	2,366	+9	−2.7
Sophie	12	31.4	34.0	80	2,500	2,720	2,475	−1	−9
Josephine	12	31.8	35.9	80	2,544	2,872	2,640	+3.7	−8
Margaret	12	33.8	37.2	80	2,700	2,976	2,733	+1	−8
Rose	13	40.6	44.0	79	3,160	3,476	2,609	−17	−24

in food intake; for while the girls appeared to be eating large amounts when judged by certain days or individual meals, the total calories varied greatly from day to day due to the frequency of low calorie meals or days. Dinners were usually lower than the other meals and Sunday as a day fell below the rest of the week.

As regards rest, the Preventorium was requiring sufficient hours in bed, but the girls were failing to get the required hours of sleep for normal children by one-half to two and a half hours. Judged on the basis of their greater sleep needs than normal children, therefore, they were falling far short of the required hours of sleep.

A survey of the medical record indicated the possibility of 8 out of 10 having one or more clinical handicaps, as mild chorea, enlarged tonsils

which might be infected, toxic goiter, and similar factors, the symptoms of which were not sufficiently pronounced for definite diagnosis.

CONSTRUCTIVE WORK

Although the apparent clinical handicaps could not be confirmed or remedied at the time, an attempt was made to produce gains in weight during the next four weeks, through a modification of the diet by means of (1) an increase in calories for each child over the control period, (2) consistency in intake from day to day, (3) the use of concentrated foods to reduce bulk, and (4) also by a modification of the activities, securing more complete relaxation and more hours of sleep. Since the vitamin and mineral content of the diets of the control period seemed adequate, no emphasis was placed on these factors.

During the three-day control period only two made gains in weight, and these were very slight. A prescription card was therefore planned for each child—based partly on the food intake of the control period and partly on the standards—indicating the total calories it was desired should be eaten during the day and at each meal. These cards were placed by the children's plates during their meal, their purpose explained, and the foods checked off as they were eaten. These cards thus fulfilled a double service. To the worker they served as a record of the food eaten at each meal, and also as a means of checking on any deficiencies from meal to meal. Thus any deficit could often be met in the lunch or the following meal and the total calories for the day kept up to standard. To the children they served as incentives to more consistent eating. Since they were taught the food value of the servings they were able to check their own prescriptions, and were eager to fulfill them.

Since the diets appeared bulky for some children, concentrated foods were introduced as an aid in maintaining a sufficiently high and consistent calorie intake. Some of the special measures, other than increased size of servings and second helpings, are as follows:

1. Cereals were cooked in milk.
2. Crackers were served with the afternoon lunch of milk.
3. Jam, peanut butter, molasses, and brown sugar were added to certain low calorie meals, and were also given to individual girls to help in finishing the allowance of bread.
4. The usual low calorie desserts, as berries, were supplemented with cup cakes or cookies.

In short, the investigator was always on the alert to forestall or over-

come any apparent deficiency for individuals or for the group, by these and other supplementary measures, in order to maintain a consistent and adequate food intake.

RESULTS

Increased food intake

The results showed definitely that by close supervision the food consumption of such a group can be increased and made more uniform and that gains in weight can be produced. Table 2 (and chart 1) gives the food intake of this group for each period in comparison with the standards

TABLE 2

Comparison of food consumption with standards and prescription

NAME	STANDARDS FOR CALORIES			CALORIES CONSUMED					
	Holt, total	Per kilogram observed weight	Per kilogram average weight	Control period I	Food prescription	Period II	Period III	Period IV	Period V
Carol	1,815	1,976	2,211	2,605	2,700	2,585	2,462	2,591	2,585
Sybil	2,195	1,848	2,063	2,090	2,200	2,520	2,390		
Frances	2,520	2,352	2,360		2,400	2,470	2,353	2,482	2,405
Lillian	2,520	2,500	2,688	2,240	2,400	2,673	2,385	2,546	2,400
Ariel	2,520	3,040	3,120	2,824	3,000	3,540	3,053	3,052	3,138
Jennie	2,864	2,152	2,432	2,366	2,600	2,605	2,669	2,836	2,555
Sophie	2,864	2,500	2,720	2,475	2,500	2,928	2,349	2,679	2,592
Josephine	2,864	2,544	2,872	2,640	2,700	2,618	2,587	2,896	2,772
Margaret	2,864	2,700	2,976	2,733	2,800	3,125	2,992	3,102	2,875
Rose	3,210	3,160	3,476	2,609	2,900	2,804	2,732	3,307	3,033
Average				2,500	2,700	2,786	2,600	2,830	2,930

and with the prescriptions. It is seen from these records that in 9 of the 10 cases the food intake of the experimental period was equal to or greater than the standard, and in every case was increased over the control period. The prescriptions were likewise practically met in every case. The average intake of the group for every three-day period exceeded the average of the control period, and the daily intake of individuals was much more consistent.

Increased gains in weight

The gains in weight are shown in table 3, together with the "expected gains" for normal children of their height and age, and also the gains for a previous control period of four weeks. On either basis of compari-

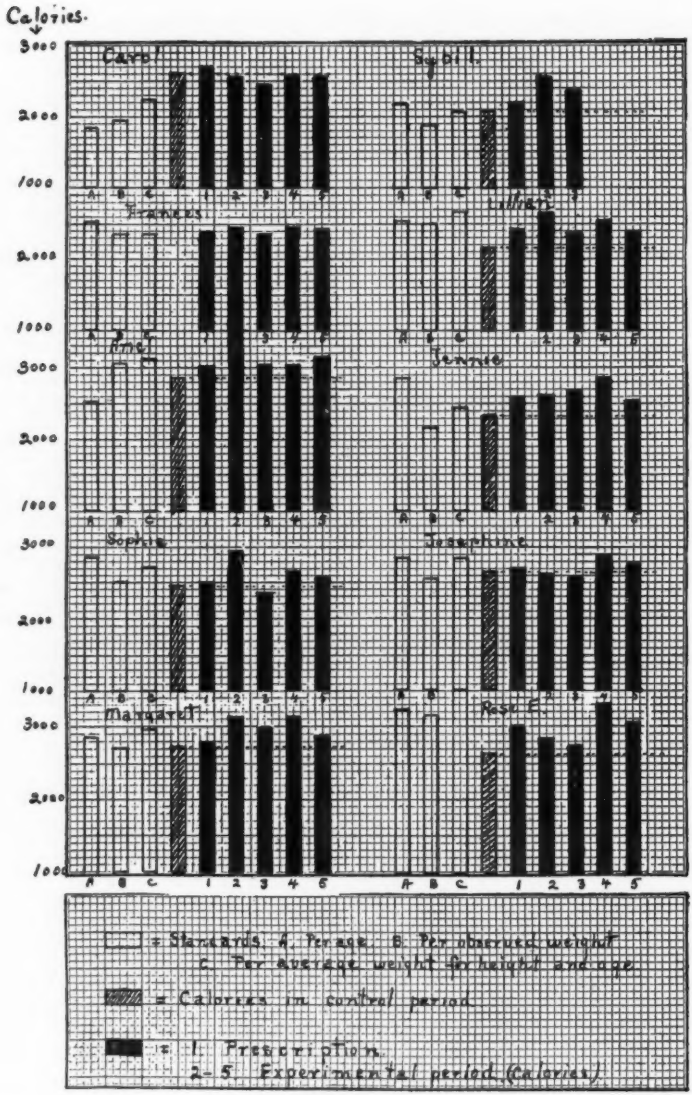

CHART 1. COMPARISON OF FOOD CONSUMPTION FOR EXPERIMENTAL PERIOD WITH STANDARDS AND WITH PRESCRIPTION

son, the gains, although not great, are gratifying. With this group the expected rate of gain varies from ½ to 1½ pounds per month, while the gains actually produced were more than double the expected amount

TABLE 3

Comparison of actual gains with expected rate of gain and with gains for preceding four weeks

	OBSERVED WEIGHT	AVERAGE WEIGHT FOR HEIGHT AND AGE	AGE	GAINS 4 WEEKS PRECEDING STUDY	GAINS 4 WEEKS OF STUDY	EXPECTED RATE OF GAIN PER MONTH	PER CENT ACTUAL GAINS ARE OF "EXPECTED"
				pounds	*pounds*	*ounces*	
Carol	60½	64	8	No gain	3¼	10	520
Sybil	54½	63	10	Lost ¼ pound	1 (2 weeks)	8	200
Frances	65⅞	65	11	½	1⅞	8	375
Lillian	70½	74	11	¼	1¼	13	153
Ariel	86½	86	11	½	1⅞	13	230
Jennie	64½	67	12	1¼	2	13	246
Sophie	71⅛	75	12	½	2½	13	261
Josephine	74	79	12	2½	3¾	13	461
Margaret	77⅜	82	12	Lost ¼ pound	3½	17	384
Rose	93¾	97	13	¼	4	13	492

TABLE 4

Comparison of the gains of the experimental group with a good gaining group

GOOD GAINING GROUP			EXPERIMENTAL GROUP		
Name	Age	Gains made	Name	Age	Gains made
		pounds			*pounds*
K	12	5½	R	13	4
S	14	4⅛	J	12	3¾
P	10	3½	C	8	3½
G	12	3¼	M	12	3⅛
S	10	2½	S	12	2⅛
M	12	2⅛	J	12	2
B	13	2¼	A	11	1⅞
A	12	1½	F	11	1⅞
M	11	1	L	11	1¼
M	13	¾	S	10	1 (2 weeks)
Average		2.6			2.5

in every case but one, the range being from 153 to 520 per cent. This improvement is even more apparent when the gains are compared with the previous four weeks' record, as is graphically shown in chart 2. In every case the actual gains are well above those of the preceding four weeks, one as high as 1600 per cent above.

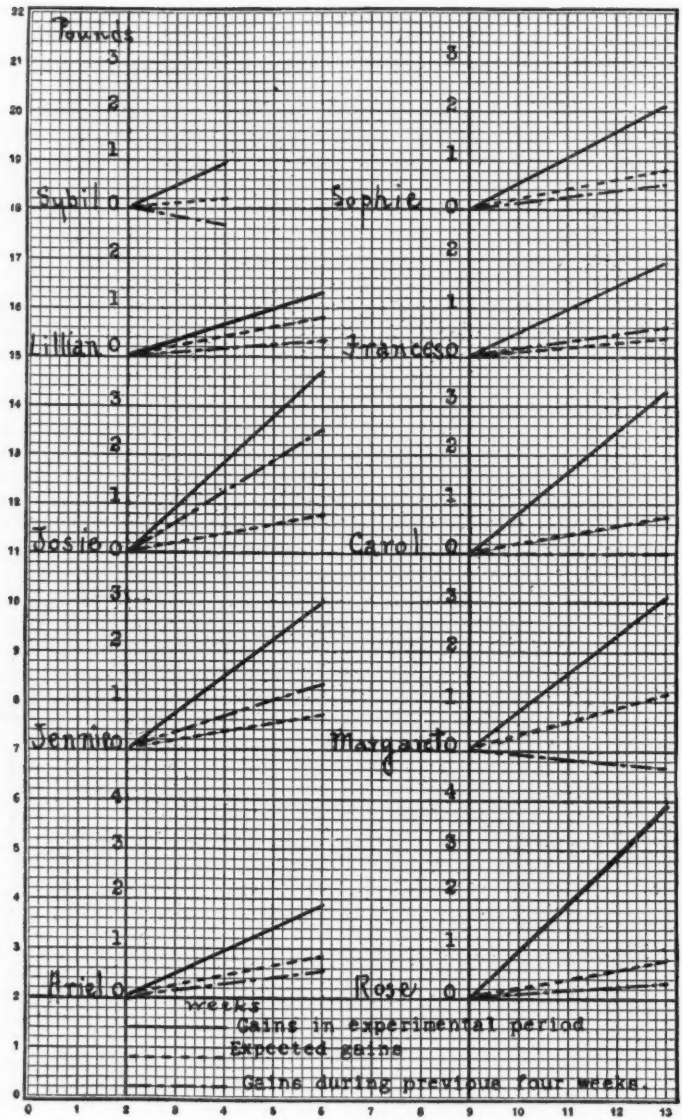

CHART 2. GAINS OF CHILDREN COMPARED WITH EXPECTED RATE OF GAIN, AND WITH GAINS DURING PREVIOUS FOUR WEEKS

A further evidence of the success is shown by a comparison of the gains of this group with those of an equal number of children who were making satisfactory gains on the regular preventorium procedure, without the special attention given the experimental group. The records for the two groups are given in table 4. It is seen that the individual gains of the two groups are fairly evenly matched, and that the average is almost identical, being 2.6 pounds per month for the easy gainers and 2.5 for the experimental group. Thus by all three methods of judging, it is evident that gains in weight were definitely stimulated during the experimental period.

It is obvious that the improvement in this group of difficult gainers can be attributed to the special supervision given them during this period. Just why they need the extra supervision is another question. It has already been indicated that the possibility of some clinical handicap existed in practically every case, and a thorough medical examination at the close of the period confirmed these suspicions in a number of cases. It is probable, therefore, that these handicaps explain in part the difficulty with which these children put on weight. It is significant, however, that gains could be produced even in these children by a consistent daily food intake only slightly above the standard, together with adequate rest and restricted activities. To insure these conditions, however, requires more detailed supervision of individual children than is possible with the usual limited staff of a preventorium. It would seem, therefore, that there should be either a more careful selection of children so as to include only those who have no clinical handicaps and can be expected to thrive on the general preventorium procedure, or that a special dietitian should be added to the staff to take charge of such intensive work with the difficult gainers as has been described. Without some such provision, the work of the preventorium for these children appears to amount to naught, their stay in the institution is unnecessarily prolonged, the number of children that can be given care is thereby limited, and the cost per capita is correspondingly increased. Judged on the basis of cost per number of children brought up to normal, the additional expense of the special worker would be a real economy.

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THE NORMAL DIET AND THE RELATION OF THE THERAPEUTIC DIET TO THE NORMAL[1]

SOLOMON STROUSE, M.D.

At the outset it is wise to state what we mean by normal diet. The word normal is rather interesting. Usually it means that particular thing or action which is characteristic of the majority at the particular time. Absolute standards are rare. I want to emphasize that the whole point of my discussion will be based on the idea that the word "normal" is a flexible term, that the normal diet is flexible; and that the diet for the sick individual is likewise flexible. Starling, in discussing the food supply of a nation, gives as a physiological basis of a normal diet certain very interesting fundamental conceptions. First, the nutritive value of the several foods; second, the standard of requirements of the normal adult male as regards each of the constituents of food requisite for healthy activity; third, the need, in proportion of that standard, of women and children. This physiological basis is true, whether dealing with the food of a nation or the food of an individual, but the actual meal which is to be served on this basis cannot be the same for all individuals. Figuring a nation's food, the law of averages, of course, follows the rule. Figuring an individual's food, many things not embodied in this physiological definition must be taken into account.

"Given a fair choice of foods, the human being, guided by appetite, will choose a combination of adequate proportions of food stuffs." Sometimes one gets the impression that people misbehave when they get into the dining room. Yet I personally believe this to be untrue. Not long ago, the American food habits were analyzed and the only real deficiency was found in the vitamin and calcium content, due to the insufficient use of milk. I analyzed a lunch served at one of the Chicago hurry-up lunch counters to some 350 persons and found not only that the meal was well proportioned, but that the 350 people got their money's worth of protein, fat and carbohydrate. The individual conception of a normal diet takes into consideration many factors of individual preference, notably—taste, preparation, digestibility, seasoning and bulk.

[1]From the Medical Clinic, Michael Reese Hospital, Chicago. Read at the Tri-State Meeting, Chicago Dietetic Association, January 27, 1928.

Experience with feeding groups of individuals proves how variable a "normal" diet may be. Who can say that the spaghetti carbohydrate of one race has a better or poorer nutritive value than the rye-bread of another? Olive oil or goose fat equally supply fat calories. As regards digestibility, what is food for one is an indigestible mess for another. The occidental races shudder at the uncooked fish of the orientals. Race, geographic location, origin, occupation, racial and personal habits are as important elements in building a normal diet for the individual as are the scientific rules of nutrition. Without the latter healthy diets are not possible, but it must be confessed that these rules sometimes follow rather than dictate ways of living.

Regarding the theoretical caloric needs and the normal proportions of food, it is fair to assume that a healthy individual, doing active work, living well, is taking a normal diet. Whether this diet contains the theoretical number of calories and the actual figures for protein, fat and carbohydrate is relatively unimportant. If such an individual doing a certain amount of work remains in good health and maintains a proper weight we can be fairly certain that his caloric equation is being properly consummated.

From a standpoint of calories all foods are fuel. That the protein intake may vary within a wide range is proved by a series of experiments undertaken by various investigators, notably—Chittenden. The only points of real importance in regard to protein are in the composition and relation to the caloric intake. There is a difference between what might be termed a physiological minimum and a physiological optimum. In other words, the theoretical 100 grams of protein may be considerably reduced, even as low as 30 or 40 grams, provided the total caloric intake is sufficient; but even granting that existence may be maintained on such a low protein intake, it is fair to ask whether the best existence is possible. This question need not be discussed here. It is brought up merely to call attention to the fact that there need be no absolute figure of protein intake.

Except for the difference in caloric value, fat and carbohydrate are essentially isodynamic as regards their fuel value; and wide variations in the proportions are noted in normal diets of different peoples. Surrounding atmospheric conditions, activity of the group, source of supply and such extraneous factors are the most important elements in formulating a normal fat-carbohydrate ratio. Such racial distinctions are naturally carried over into dietary habits of most normal individuals.

Nothing need be said here about the necessity for attention to the mineral and vitamin content of food, as the subject will receive further notice in the discussion of therapeutic diets.

THERAPEUTIC DIETS

It has always seemed that one of the weaknesses of therapeutic diets as usually practiced is the willingness to follow blindly a traditional diet for a given disease. To me this is all wrong. A diet must be built on the basis of a particular individual's reaction to a given disease. There are many reasons for this point of view. In the first place, careful analysis of all the significant data on which many traditional diets are built fails to show sufficient evidence to warrant any embracing conclusions as to their efficacy. Taking as a simple illustration the diet of hypertension without renal involvement, it is fair to say that the present vogue for a "non-protein diet" in this condition is the result of a blind adherence to a tradition. I have never been able to find any scientific data showing that moderate amounts of protein caused an increase in the blood pressure in the normal or in the person with high blood pressure. Formerly hypertension was considered a symptom of chronic nephritis, a disease in which protein was supposed to be harmful. When the symptom hypertension was finally severed from the nephritic complex, treatment did not follow along the line of cleavage. What little evidence is available shows that the average individual placed on a "non-protein diet" over-eats carbohydrates and fats, increases weight and thereby at least potentially increases blood pressure. Furthermore, there is a fairly general opinion that more concern about the ego is bad treatment for patients with hypertension, so that the rigorous diet and rigorous methods of living frequently prescribed do not lower the blood pressure, but by centering too much attention on self do exactly the reverse. I could cite numerous incidents of women with hypertension who following a strict method of living and eating grew worse until moderation without restriction was advocated.

There is no disease which offers more chance for individual variation in treatment than hypertension. Probably the best results are obtained when we apply to diet the same rule we apply to all other activities of life in such an individual. Moderation in all things is usually ordered. The patient is allowed to play golf in moderation, to play bridge in moderation; the diet then should be ordered along exactly the same lines. Not too much protein, but not too much carbohydrate or fat is allowed.

A cup of coffee and a cigar may do more good, by restoring equanimity, than harm because of their supposed toxic effects.

In many of our dietary procedures we can have no fundamental basis of proved scientific facts. Dealing with the symptom of hyperacidity, for instance, it must be admitted that although certain foods may have a theoretic tendency to increase the gastric acidity, they likewise have a definite and practical value in relieving the constipation which so frequently precedes and possibly causes the acid stomach.

Remarkable advances have been made in the diet therapy of infancy and childhood; yet it requires an extraordinarily well-controlled sense of humor not to smile indulgently at the history of this progress. Our parents are righteously indignant when we feed our infants bananas and tomatoes, and whoever heard of mixing orange juice and milk? The points I wish to emphasize here are plainly visible. Often what we take to be a scientific fact is mere tradition; what appears to be absolute truth is actually relative even in the most rigid of sciences. Vagaries of style and fashion may really give results of actual value, even though the explanation of their action at the moment is subsequently proved unsound.

The great diet disease is, of course, diabetes mellitus. The patient now suffering from this disease is a simple enough problem in diet. If he can eat enough calories to maintain life without insulin we can construct a suitable menu, if he requires insulin the menu may be different, but the results in either case are good. What I would emphasize here is a little historical retrospect into the various methods of dieting and a comparison of the results of various methods. There are able advocates for the harmfulness of protein, fat and carbohydrate in this disease; there are mathematical formulae to direct us into completely balanced ratio of foodstuffs; and there are patients who go from clinic to clinic and do equally well in each, regardless of the fact that the methods of treatment may vary in fundamental conception as well as detailed execution. How can we account for these facts? The answer must be that there is no "set" treatment for diabetes, and that each individual diabetic must be handled individually. Perhaps even some of our most cherished beliefs are merely beliefs rather than facts established by scientific proof.

For some time I have allowed my internes to treat diabetic patients as they saw fit, and as our internes are recruited from various medical schools I had an interesting opportunity to study the results of various methods. Most of the patients in the wards became sugar-free quickly,

most of them were able to reach a satisfactory diet quickly, no matter what particular method of desugarization or of building up tolerance was employed. This can only mean one thing, that wide variations in the treatment of the patient with diabetes are possible, and that in this disease a therapeutic diet is almost as flexible as I have maintained that the normal diet can be.

Enough examples have now been cited to permit us to propose our argument on the relation of the therapeutic diet to the normal diet. *Disease* cannot be treated by a diet; the patient as an individual with certain preëstablished food habits offers himself for treatment. Just as there are indications and contra-indications for drugs, so there are for foods. When such indications are seen we must not lose sight of the importance of not disturbing long established normal habits. A diet which completely and persistently neglects the importance of calcium, of certain amino acids, of vitamins for the practical job of living cannot be a good diet. A diet which, based on pseudo-scientific reasoning concerning a disease, leads to bad health in the individual, cannot be a good diet. A diet based on traditional treatment for a disease even though followed by good therapeutic results may not be the best diet for the particular individual with that disease.

The time has arrived to be more rigid in our analysis of what we know, and more flexible in our attitude toward our patients. A study of the patient's dietary habits in relation to his disease offers a better basis for therapeutic correction than the effort to apply uniform standards of diet to fit his disease. If Voit's definition of food as a "well tasting mixture of food stuffs in proper quantity and in such proportion as will least burden the organism" is true in health, it is essential in disease.

JEWISH CEREMONIALS AND FOOD CUSTOMS[1]

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The practice of Jewish ceremonies as commanded in the Torah, has been responsible for the preservation of Judaism, and is the secret of its survival. The Torah contains a system of training and teaching in idealistic matters regulating social as well as religious relationships. "The same religious law tells the Jew to keep the Sabbath, and to set aside a tenth part of his income for the support of the poor; to observe the dietary laws and to do his share in bettering the lot and character of his fellowmen—to fast on Yom Kippur so that he may be more apt to reflect seriously on his duties and failings—not to oppress the stranger—to obey the law of the State—and to respect civic customs and local feeling whithersoever life may lead him."

The Torah is the explanation of the uniqueness of Jewish history and is the most sacred and precious possession of the Jews. It is written in Hebrew by a professional scribe (sofer) on parchment made of the skin of a clean animal (one whose flesh may be eaten). The sheets are fastened together with sinews of a clean animal so as to form a scroll, and mounted on wooden rollers called "tree of life." It is encased in "The Holy Ark of the Law" in the Synagogue and is removed with great ceremony, and read during part of the service. When the Scroll is to be returned to the Ark it is enclosed in a mantle of costly material which is usually beautifully embroidered.

The Sabbath is the keystone of the entire structure of Jewish life. With its peace and opportunity for spiritual regeneration, it was regarded as a gift of God and was called in reverence "Queen Sabbath" or in love the "Sabbath Bride." The Jewish woman has contributed, and still does contribute, an important part in the preservation of the Sabbath. All marketing and cooking is prohibited on the Sabbath so that preparations are made on Friday; among the preparations, the "Separation of the Dough" is observed. According to the ancient belief it is assumed that all our possessions belong to the Lord. Since we are in need of part of

[1] Read before the Massachusetts Dietetic Association, February, 10, 1928.

our possessions the dedication of part of them releases the remainder for our own use. Thus, taking a bit of dough the size of an egg and throwing it into the fire is the ceremony of separation of the dough or taking of the Hallah.

The various Sabbath preparations are designed for purposes of creating an atmosphere of peace and leisure. Snowy linen, sparkling silver, flowers, Sabbath dress, the welcome guest, whether friend or stranger, all contribute toward this atmosphere which marks the end of the week. The day is computed from sunset to sunset and therefore begins on Friday and terminates at sunset on Saturday. To the mother in the home is given the privilege of inaugurating the Sabbath by the kindling and blessing of Sabbath lights shortly before sunset. This also takes place in the Synagogue by a special service. After this no fire may be handled until the following day. On returning from the service and before the evening meal the head of the house fills a cup with wine, raises it in his right hand and recites from Genesis ii: 1–3, relating the origin of the Sabbath, and pronounces a benediction over the wine. This ceremony is called Kiddish or Sanctification. He then drinks and hands the cup around for the other persons at the table to partake of. Where no wine or liquor is available, the Kiddish may be pronounced over two loaves of bread which are laid on the table in memory, it is assumed, of the two portions of manna that were gathered in the wilderness on Friday and supplied to the Israelites, and are symbolic of the two-fold commandment to keep the Sabbath. The loaves are then cut up and pieces distributed among the members present.

Sabbath is inagugurated by the benediction over a cup of wine and the lighting of candles and is terminated in like manner. In addition a spice box is used and a specially prepared candle. The head of the house takes the cup of wine in his right hand and the spice box in his left while a child generally holds the candle. The wine and spices are blessed and passed around so that the Sabbath bride may depart in a wave of sweet incense. The service is closed with a Thanksgiving to God for the distinction He made between the Sabbath and work days. The candle is extinguished with drops of wine. The ceremony is called Habdallah which means separation, because it separates the Sabbath from the other days of the week.

Rosh Ha Shanah or the Jewish New Year marks the time for a new birth in the life of the spirit of the Jew, and is described as the Penitential Season. This is one of the most solemn of Jewish holy days and is sometimes described as the Day of Blowing because of the memorial blowing of

the shafar. According to the Torah, in ancient days the ram's horn or shafar was blown to announce the new moon, solemn festivals, and for military purposes in the same manner that the modern bugle is used. At present it is especially employed during the penitential season which begins with the first of the month of Ellul (August or September) and culminates on the Day of Atonement. Rosh Ha Shanah is also known as the Day of Memorial because according to tradition this marks the birthday of the world. It is also known as the Day of Judgment and is a time devoted to introspection and self criticism. On this holiday good will is expressed in kind deeds and gifts are exchanged. A special Kiddish is made and bread or apple is dipped in honey while a benediction is pronounced.

Yom Kippur, the Day of Atonement, is the holiest day of the year. It is devoted entirely to the claims of the spirit and all bodily needs and desires are put aside. The day is spent in the Synagogue fasting, confessing sins and praying for pardon. The Fast begins at sundown and does not end until the stars appear after sunset the following day. It is commanded in the Bible as a sign of affliction. The purpose of the Fast is to inculcate certain lessons—the mastery of natural wants by the will, the realization of human weakness and man's dependence upon God for sustenance. It points to the natural equality of all men, their subjection to the same natural laws and inculcates sympathy for the hungry and needy. The service and fast are brought to an end at the appearance of the evening stars—the shafar is sounded, a New Year is ushered in, and life is begun again with renewed courage and idealism.

Passover occurs sometime in the spring. This holiday commemorates the deliverance of a people from degrading slavery. It affirms that liberty is the inalienable right of every human being and by celebrating this feast every year the Jew hopes to re-impress this great truth and keep it alive and green in the minds and hearts of the people. As related in the first chapters of the book of Exodus, this festival was celebrated in commemoration of the deliverance of the Jews from the bondage of Pharoah and in memory of the departure from Egypt. Death was denounced against all the first born of the Egyptians who had oppressed the Israelites, while these were commanded to sprinkle their door posts with the blood of the lamb that the Avenging Angel seeing the sign might pass over them and leave untouched all Jewish children. Thus we get the name Passover.

With Passover is associated the symbolic Unleavened Bread, the "bread of affliction," that vividly recalls Pharoah's downtrodden slaves, and the symbol of haste which marked the departure from Egypt. Foods made

with leaven, or containing even the slightest particle of leaven, are prohibited on Passover. In addition many other kinds of food which are free from leaven are prohibited for fear that such foods in picking or packing may have come in contact with it. Thus for Passover purposes such foods as prunes, raisins, milk, butter and canned goods must be prepared under special supervision.

At the Seder or Service, held on the first and second nights of Passover, there is a unique form of home worship. A special prayer book has been compiled for this unique service called the Ha Gadah (narrative) and relates the story of the Deliverance. The very symbols which were prominent that memorable night in Egypt appear on our tables today: the Matzoh, or bread of affliction; the Pesah, or roasted lamb bone together with the roasted egg, in memory of the Paschal Lamb offered and partaken of by the Israelites on the eve of their departure; Moror-Bitter Herbs emblematic of the bitterness of bondage that was to end that night; these are the three basic symbols, but in addition others have been added. Haroseth, a thick mixture of grated apples, powdered cinnamon, chopped nuts and wine, represents the mortar from which the bricks were made by the Israelites when they were in bondage. Salt water is poetically described as typifying the salty tears shed by the mothers upon hearing Pharoah's cruel command that male infants were to be drowned. Parsley or other green vegetables dipped into the salt water represents the beginning of the ancient meal.

Shavuoth or Feast of Weeks, is so called because it follows seven weeks after Passover. The harvest season was formerly opened by the waving of a sheaf in the Temple in the second day of Passover. Before this ceremony was performed it was forbidden to harvest any grain. Seven weeks or forty-nine days after (or the fiftieth day, hence Pentecost) was Shavuoth, also called "feast of the harvest" and "feast of the first fruits," because on that day two loaves of bread made from the first grain or wheat were offered at the Temple. Like Passover this holiday is historical as well as an agricultural festival. It is the anniversary of the giving of the law at Mount Sinai.

Milk foods seem to be popular on this holiday and it is thought that this custom had its origin in the practice of serving coffee and cake late in the evening to those who remained awake late to study the Torah. There are many other minor feasts and fasts but these do not have the prominence of the above.

"The dietary laws," says Friedlander in "The Jewish Religion," "are exactly the same now as in the days of Moses." They have their origin in

the Torah, which lays great stress upon the regulation of the bodily appetites. The restrictions which these laws imposed were intended, it would seem, to discipline and remind the Israelite that he was different from the people around him—that he belonged to a people set apart from the nations, to be God's own. This idea of physical separateness was to beget the idea of moral separateness, for the daily preparation of foods in a specific manner, and the eating of certain foods only, was a constant reminder of an exalted spiritual life. Thus, through the discipline which the dietary laws impose, it was intended to develop and ennoble the moral tone and character of the Jew. Abstinences from foods permitted to others developed self control and strengthened self-mastery. The separation of the clean from the unclean foods helped in developing a sense of the separation of the morally clean and unclean. There are those who consider that these regulations are purely hygienic, and that the regulations were purposely chosen because obedience to them would promote health.

In a Jewish home a perfectly prepared meal, daintily served, is not enough. It may satisfy the physical desires and the esthetic sense, but to be perfect it must be prepared in accordance with the dietary laws—it must be Kosher, so that the discipline thus involved may help sustain the spirit also.

Kosher means ritually correct—fit for use, and when used in reference to food means food selected and prepared according to the laws of the Torah. Kosher meat is the meat of those animals which are permitted for use, and which have been slaughtered in accordance with the Jewish method of slaughter.

Terefah is the opposite of Kosher. Literally the word means "torn by wild beasts" and therefore according to the Torah any such food would be rendered unfit for use. The meaning has been extended and now includes all animals unfit for use, that is, those that died a natural death or were not killed according to the Jewish method, or were torn by wild beasts, or were found to be diseased. If, after the animal has been killed, any of its parts are found to be diseased in any way, then it is terefah and must not be used.

The Prohibitions included all unclean animals and anything that came out of the unclean animal. Therefore it is forbidden to use the milk of unclean animals or animals suffering from some visible malady. The clean animals were all quadrupeds that chew the cud and divide the hoof. Forbidden animals included the camel and the swine. The abhorrence

and contempt for the swine was based on the fact that it was considered an emblem of filthiness and the use of its flesh as food is branded as apostasy. Fish having fins and scales are the only ones permitted. All shell fish and creeping things are forbidden. All birds of prey are prohibited. Eggs of unclean birds, or birds suffering from any illness, are forbidden. A drop of blood found in the yolk of an egg is considered as an indication that hatching has begun and the egg must not be used. Blood, because it contains the vital element is strictly prohibited. Not only blood itself but flesh containing blood. This explains in part the Jewish method of slaughter; besides the fact that it is the most humanitarian method, it allows the blood to pour out more freely than by any other method. The koshering of meat in the home is done for the purpose of removing the blood. This is done by first soaking the meat in water for one-half hour. Then the meat is thoroughly covered with salt, placed upon an inclined perforated board and allowed to drain for one hour; it is then washed under cold water. This process removes surface blood, adhesions, and drains much of the blood that may have coagulated in the veins.

Steaks and chops, if they are going to be broiled, need not be put through this process. The juice escaping during process of broiling is terefah. Liver is not put through this process. It is prepared by cutting in several places to let the blood run out, it is then sprinkled with salt and broiled over an open fire. Fowl having any defects such as abnormal growth, bruised wing, or broken back may not be used. The jugular vein where the slaughtering was done must be removed. The fat of ox, sheep, or goat is forbidden.

The custom of refraining from eating the sinews of the hind legs of an animal arose, according to the Biblical narrative (Genesis xxxii: 32), from the story of Jacob's wrestling with the angel, which resulted in his becoming lame. It is not a real prohibition and if the hindquarters are properly prepared, the meat is kosher. The packing houses find that the hindquarters bring too high a price in the non-Jewish market to warrant going to this trouble. Birds are excluded from this law.

The kid must not seethe in its mother's milk; to this prohibition may be attributed the origin of not permitting the mixture of milk or milk products, such as butter, cheese, or cream, with meat in any way. This, of course, calls for two complete sets of cooking and serving equipment in the Jewish home. After partaking of a meal at which meat is served it is forbidden to eat milk food until three to six hours have elapsed.

Since bread is eaten with both milk and meat products it must be neutral, or prepared especially for a milk or meat meal. Foods such as fruit, eggs, fish and oils which contain neither meat nor milk are called Parvah, or neutral.

If a small portion of forbidden food even the size of an olive falls into a pot of permitted food, all the food in the pot is forbidden unless no taste of the forbidden object can be detected in the food in the pot. "Meat and fish should not be cooked together because such a mixture was supposed to cause leprosy." It is therefore the custom to wash the mouth between eating a dish containing fish and one containing meat. Fish, being a cold blooded animal may be eaten in conjunction with milk and milk products.

It is probable that originally the Jews were vegetarians and the privilege of using animal food was extended only to laborers. But after the Flood, when the animals were saved in Noah's Ark, all were granted the right to consume them.

The Jewish method of slaughter, known as Shehita, is believed to be superior to all other methods of killing, the safest and most expeditious. The animals are subjected to little pain and the removal of blood is effected in the most perfect manner. Meat slaughtered this way is considered hygienically superior to all other meat. The method is direct bleeding by severing the blood vessels of the neck. This is done by a man called Shochet, who is particularly trained for this purpose. The knife must be sharp and perfectly free from all nicks or dents. The severing of the neck permits of the escape of an enormous amount of blood and is more efficacious than having to wash out the chests of animals which have been killed by the "stunning" method. Blood decomposes rapidly in the dead body; therefore, it is believed that the more blood that is left in meat the sooner it will decompose. The Jewish method is said to hold in check for some time the development of putrefaction.

Today—outside of the restriction and prohibitions described—one can hardly say there are any fixed characteristics of the Jewish dietary. Their cookery is international and their choice of food depends upon the country from which they come. The Polish and Russian Jews emphazise lockshen (noodles), gefillte fish, and kashe, a cereal made of barley or grits and generally eaten with meat instead of a vetetable. Borsht, a soup of beets or cabbage is a favorite. Galicians and Lithuanians share in a great many of these characteristic foods and add carrots, potatoes and prunes—a sort of compote, cooked with meat, to the

list. The taste for herring, pickles and cucumbers comes from Holland, while the fondness for oil as a frying medium comes from Spain and Portugal and the Orient. The sweet and sour stewing of vegetables and meat comes from Germany.

The diet in general is over rich and poorly balanced; the chief fault lies in the use of too few vegetables.

CURRENT LIST OF HOSPITALS GIVING THE APPROVED COURSE FOR STUDENT DIETITIANS

In October, 1927, an outline of a standard course for student dietitians in hospitals was approved by the American Dietetic Association. A list of hospitals offering training to student dietitians which met all the requirements of this approved course was published in the March JOURNAL.

Since then the number of hospitals following the approved course has been steadily increasing. The list published below includes the names of all the hospitals now known to the Committee to meet all the requirements of the approved course for student dietitians.

The information about each hospital was obtained through a questionnaire filled out by the chief dietitian of the hospital. As yet no scheme of hospital inspection has been worked out. It is hoped that next year some such plan may be found possible. At present the only material by which the Committee may judge the course in any hospital are the statements made by the dietitian on the questionnaire. From this it is a simple matter to determine whether or not the course includes all the essentials of the approved course. In a way the questionnaire is a contract with the dietitian. But what happens when the dietitian leaves and a new dietitian comes to take her place? Perhaps the work continues; perhaps it is improved, but an instance has come to the attention of the Committee where this is not true. The new dietitian was not given the same standing in the hospital; it was no longer possible for the students to receive proper administrative experience. In this particular case the new dietitian asked the Committee to take the name of the hospital from the approved list. But because of the possibility of similar instances, the Committee feels that each new chief dietitian should be required to fill out and send in a new questionnaire. This would be her statement of the outline she planned to follow in training student dietitians, and from it the Committee could determine whether or not to list the hospital as one at which the approved course is offered to student dietitians. When a chief dietitian leaves, the hospital would be automatically dropped from the list until the new dietitian communicated with the Committee.

This would mean that the list of approved hospitals would constantly

be changing and should be published in the JOURNAL at least once a year. Complete information in regard to the requirements of the approved course, together with a questionnaire for the dietitian to fill out and a list of hospitals offering the approved course, could be obtained at any time by writing to the business office of the American Dietetic Association.

It would not have been possible to include many of the new names on the list published below if the members of the Committee had not worked with the greatest coöperation and done all in their power to eliminate any extra delays. Those who have worked on the Committee this year are Thelma Tubbs, Peter Bent Brigham Hospital, Boston, Massachusetts; Rosina Vance, Massachusetts General Hospital, Boston, Massachusetts; and Eugenia Martin, Barnes Hospital, St. Louis, Missouri.

Hospital	*City*	*Dietitian*
British Columbia:		
Vancouver General Hospital	Vancouver	Ethel C. Pipes
California:		
California Lutheran	Los Angeles	Reeva Hinyan
Hospital of Good Samaritan	Los Angeles	Hester Wilman
Fabiola Hospital	Oakland	Belle Haggerty
San Francisco Hospital	San Francisco	Helen Abbot Douglas
Stanford University Medical School	San Francisco	Charlotte Sloan
Methodist Hospital	Los Angeles	Leone A. Hall
Colorado:		
St. Luke's Hospital	Denver	Thelma Franks
Connecticut:		
Bridgeport General	Bridgeport	Leslie Hunter
Illinois:		
Cook County	Chicago	Millie Kalsem
Evanston	Evanston	Sarah E. Osborn
Michael Reese	Chicago	K. Mitchell Thoma
Presbyterian	Chicago	Elsbeth Hennecke
Indiana:		
Indiana University	Indianapolis	Lute Trout
Methodist	Indianapolis	Margaret Marlowe
City Hospital of Indianapolis	Indianapolis	Amy Colescott
Iowa:		
University of Iowa	Iowa City	Kate Daum
Iowa Methodist	Des Moines	Frances Rose
Maryland:		
Johns Hopkins	Baltimore	Phyllis Rowe
Massachusetts:		
Children's Hospital	Boston	Martha Stewart
Massachusetts General	Boston	Rosina Vance
Peter Bent Brigham	Boston	Thelma Tubbs
Michigan:		
University Hospital	Ann Arbor	Margaret Gillam

Hospital	*City*	*Dietitian*
Minnesota:		
Ancker Hospital	St. Paul	Winifred Howard
Charles T. Miller	St. Paul	Eva Bregorson
Minneapolis General	Minneapolis	Lois Hurlbutt
University Hospital	Minneapolis	Gertrude Thomas
Missouri:		
Barnes Hospital	St. Louis	Eugenia Martin
Kansas City General	Kansas City	Merle Buckles
Research Hospital	Kansas City	M. Ethel Ollis
Nebraska:		
Lincoln General	Lincoln	Leta Linch
New York:		
Albany Hospital	Albany	Virginia Howard Ray
Clifton Springs Sanitarium	Clifton Springs	Helen Clarke
Lebanon Hospital	New York City	Betsy Helburn
Montefiore Hospital	New York City	Mary Northrop
Presbyterian	New York City	Martha Koehne
Rochester General	Rochester	Effie Winger
Strong Memorial	Rochester	Grace Carden
North Carolina:		
Watts Hospital	West Durham	Mary Ellis
Ohio:		
Miami Valley Hospital	Dayton	L. Atta Balender
Mt. Sinai Hospital	Cleveland	Helen Mallory
Oklahoma:		
State University of Oklahoma	Oklahoma City	Edith Tilton
Pennsylvania:		
Homeopathic Hospital	Pittsburgh	Irene Wilson
Western Pennsylvania	Pittsburgh	Charlotte Addison
South Carolina:		
South Carolina Baptist	Columbia	Leila Maude Tace
Greenville City Hospital	Greenville	Grace E. Ames
Utah:		
Latter Day Saints Hospital	Salt Lake City	Katherine Baily
Washington, D. C.:		
Walter Reed General	Washington, D. C.	Grace Hunter
Washington:		
Interne Dietitian Training under auspices of the Washington Branch of the American Dietetic Association. Training arranged through affiliation at the following hospitals:		
Tacoma General Hospital	Tacoma	Flora McLaughlin
Children's Orthopedic	Seattle	Dorothy Goodrich
Seattle General	Seattle	Mabel G. Flanley

(Signed) KATHERINE MITCHELL THOMA,
Chairman, Section on Education, American Dietetic Association.

EDITORIALS

The Patient as an Individual Problem

The importance to the dietitian of keeping her mind active and open toward the clinical results of the application of her knowledge is evidenced by the papers of Drs. Du Bois and Strouse in this issue of the Journal. Hard and fast dietary laws for the masses must be manipulated and reduced to the lowest terms for the individual. It seems to be the consensus of opinion among physicians that medical and dietary therapy misses its mark unless the patient be studied, and treated as an individual, rather than that the treatment be directed simply against the disease *qua* disease. The application of certain general laws must always be adapted to the peculiar needs and idiosyncrasies of the man or woman under one's care at the moment. Shakespeare's wise line "one man's meat is another man's poison" fits into the practical scheme of dietetics today.

Aside from the need for common sense in translating theoretical knowledge into practical usage, a better understanding of the patient's racial or other food-habits assists the dietitian materially. Both mentally and physically, the food question is magnified in illness. Factors contributing to the patient's peace of mind always constitute good therapy. Miss Sadow's paper in this issue of the Journal should give dietitians some conception of Jewish food customs. This paper will be followed in the next issue of the Journal by a study of Polish food-habits recently completed by Morzkowski and McLaughlin of the Foods and Nutrition Department of Iowa State College.

A New Cancer Theory

According the to New York *Times* of August 12, 1928, a new theory relating to the prevention and treatment of cancer was announced at a meeting of the American Chemical Society at Northwestern University by Dr. Ellice McDonald, director of cancer research at the University of Pennsylvania and the Philadelphia General Hospital.

It was stated that marked benefit could be derived in suspected cases of cancer by increasing the calcium content of the blood through the administration of thyroid (parathyroid?) extract and other means. Cancer was a disease of the human cells and so subject to the laws governing

those cells. It was a disease of cell reproduction or cell multiplication whereby the cell reproduced itself lawlessly and irresponsibly. Nature developed controls, called inhibitors, which checked the growth of this development; but cancer would break down these checks.

All acids contained hydrogen. Many natural processes depended on having the right proportion of hydrogen ions in a given amount of material. It had been found that the multiplication or division of the cell depends upon the preponderance of the ions. Sodium preponderance accelerated multiplication and calcium preponderance inhibited cell multiplication. A proper balance of hydrogen and hydroxyl ions was necessary for the proper life of the cell.

In cancer this balance was upset. A greater degree of alkalinity increased the multiplication of cells, and a greater degree of alkalinity was also found in the blood of cancer patients. There was also a lessened quantity of total calcium and ionized calcium. Cancer was, therefore, a disease associated with alkalinity of the blood and with a lessened quantity of blood calcium. These conditions were prerequisite to the occurrence of cancer and their correction was necessary for its alleviation. The treatment could be intelligently directed and controlled, according to Dr. McDonald, by maintaining a certain degree of relative acidity of the blood.

Hygeiolatry, Ancient and Modern[1]

A gentle hint to dietitians and others who are helping to heal the sick and guide the well is suggested in the following excerpt from the editorial page of the *New York State Journal of Medicine* for August 1, 1928:

> The healing deity of the ancients was supposed to have a dual nature. The Greeks worshiped two gods—Esculapius, the god of the healing art, and Hygeia, the goddess of health. Esculapius was the patron god of the professional physician and surgeon. He was mysterious, austere, and learned, and could be approached only by his anointed high priest. He dealt with topics which were beyond the comprehension of ordinary people. In contrast with Esculapius, Hygeia was a modern girl mingling with the people and dealing with every-day facts of life. She was the patron saint of the people in matters of dress, food, air, recreation, exercise, and other matters of daily life. . . . . When the sick recovered, they were accustomed to repair to the temples and make an offering to the gods for deliverance from their ills.

[1] This editorial is quoted with the permission of the Editor of the *New York State Journal of Medicine.*

Furthermore, for the benefit of other persons who might be taken sick, they wrote the symptoms of their disease and the methods employed in its treatment, and posted them on the pillars of the temple in order that the physicians might study them. These votive tablets were the principal sources of the knowledge of the healing art available to Hippocrates and other Greek physicians.

Hygeia maintained no temples of her own, but she was associated with the temple of Esculapius. However, she was worshiped in shrines whose modern form is the clinic for well persons. . . . . She was recognized as the daughter of Esculapius, and as such she was a handmaiden in his temple rather than a healer by her own power. . . . . The creed and ritual of the shrines of Hygeia tend to elevate the attractive goddess above the austere Esculapius. Hygeia's clinics are established according to formal rules. Lectures are given according to standard outlines. But when serious trouble develops, the disciples of Esculapius take charge and direct the worship of its rituals, often to the dismay of the followers of Hygeia, and the subversion of their pet creeds.

There will always be a popular cult of hygeiolatry and a deification of cooks and dieticians, and social workers, and nurses, and social leaders who serve at Hygeia's shrine . . . . but Hygeia cannot maintain temples today any more than she could in Greece in the time of Hippocrates. Hygeia will always be in attendance in the temple of Esculapius. . . . . While her learning may not be phenomenal, yet her peculiar function is to popularize the ritual of the temple of Esculapius and interpret it to the people in their daily lives. Possibly she may induce the Esculapian high priest to mingle with the people on terms of intimacy and equality. . . . . Hygeia . . . . is nevertheless subject to her father, and is not a god in her own right.

THE ELEVENTH ANNUAL CONVENTION OF THE AMERICAN DIETETIC ASSOCIATION

Willard Hotel, Washington, D. C., October 28 to November 1

The enthusiastic plans of the Baltimore and Washington branches of the National Association, in coöperation with the special convention committees, promises a most interesting professional program as well as a fascinating social round of breakfasts, teas, luncheons, dinners and trips for all members and friends who attend the coming convention.

The time is almost here; make your plans immediately to attend. The progressive hospital superintendent appreciates the importance of your attendance at these annual professional gatherings. You will profit by the opportunity to visit two of the most famous hospitals in this country—the Johns Hopkins and the Walter Reed. You cannot afford to miss the interesting and inspiring program which has been arranged under the direction of Dr. Martha Koehne.

Many of the leading manufacturers of food products and dietary equipment have taken booths. They will have helpful information and new ideas to give you.

In purchasing your ticket *do not fail* to ask for your certificate. This will enable you to return for one-half fare, provided 250 certificates are turned in. Even though you are but a short distance away, do this so that other dietitians may benefit from the reduced return fare.

The Association is rapidly growing; it has reached the place where no ambitious dietitian can afford to miss the support and enthusiasm to be gained by meeting other members while attending the annual convention. A large attendance at the 1928 meeting will help the Association to make even more rapid strides during the coming year.

TENTATIVE PROGRAM

Sunday, October 28, 1928

Morning—Executive Committee Meeting.

Afternoon—For Members of the Association who arrive on Sunday.

Sight-seeing Trips.

Tea at Miss Mabel Boardman's.

Evening—Visit to the Library of Congress.

Monday, October 29, 1928

Morning—Registration. Visiting Exhibits.[1]

Afternoon—12:30—Informal Buffet Luncheon. New Willard Hotel.

Who's Who in the Association.

2:00–3:45—General Session Program.

President's Address.

Reports of Section Chairmen showing accomplishments of the year and making recommendations for the future.

S. Margaret Gillam: Administration.

Thelma Tubbs: Diet therapy.

Frances Stern: Social Service.

Katharine M. Thoma: Education.

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[1] Visiting Exhibits: Although, officially, no other space except early morning hours could be set apart on the program for visiting exhibits, every member is urged to visit all the booths and talk with the exhibitors who have gone to so much trouble and expense to contribute to the interest and value of these meetings.

Attention is also called to the special Association Educational Exhibit arranged by Sarah Elkins of Michael Reese Dispensary. See something of what various other hospitals are doing.

4:00-6:00—Annual Business Meeting of the Association.
Election of Officers.

7:30—Banquet: New Willard Hotel. Again, as last year, the program is in charge of Mary de Garmo Bryan. She refuses to divulge her plans.

Tuesday, October 30, 1928

Morning—8:00—Association Breakfast—New Willard Hotel.
An outstanding woman, whom all will want to hear, will speak.

8:30-9:30—Registration. Visiting Exhibits (see footnote 1).

9:30-12:00—Administration Section Program. In charge of S. Margaret Gillam. (Program will appear in Convention Bulletin.)

Afternoon—Luncheon—Open.[2]

2:30-5:00—Therapeutic Section Program. In charge of Thelma Tubbs.
(Program will appear in Convention Bulletin.)

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[2] Miss Lindsley and her local committee offer the following suggestions to those desiring to take some of their meals outside the Hotel.

Little Tea House, Mt. Vernon Road, excellent view of city offered.

Herzog's Fish Market, 7th Street Wharf, unusually good fish.

Wearley's, 12th St. opposite Raleigh Hotel, famous for lobsters.

Madrillon, 15th St. and New York Ave. Dancing and Entertainment, $1.50 and $2.00.

The Lotus, 14th St. at New York Ave., specializes in Chinese Food.

St. Mark's Club, Connecticut Ave., Dinners $1.50 and $2.00.

Grace Dodge Hotel, Dinners, $1.00, $1.25 and $1.50.

Occidental Hostel, Pennsylvania Ave. near 14th St., famous for sea foods.

Y. W. C. A. Cafeteria, 17th and K Sts., Northwest.

Childs, Pennsylvania Ave. near 15th St. (Miss Nellie Sailor).

6:00—Association Dinner: Special Interests Discussion Groups. New Willard Hotel.
In charge of Ruth M. Cooley, St. Louis, Mo.

8:00-10:30—General Session Program.
Presiding, Ruth Wheeler.
Pellagra: Joseph Goldberger—Surgeon, U. S. Public Health Service. Hygienic Laboratory.
Nutrition and Growth: Lafayette B. Mendel. Sterling Professor of Physiological Chemistry, Yale University.
Dietetic Treatment in Certain of the Epilepsies: Dr. H. Rawle Geyelin: Presbyterian Hospital, N. Y. C.
Nutrition and the Family in Social Organizations: Bailey T. Burritt, General Director, A. I. C. P., New York City.

Wednesday, October 31, 1928

Morning—8:30-9:30—Visiting Exhibits (see footnote 1).

9:30-12:00—Education Section Program. In charge of Mrs. Katharine Mitchell Thoma.
(Program will appear in Convention Bulletin.)

Afternoon—1:00-2:00—Visit the White House, meeting the President and Mrs. Coolidge.

1:30—Luncheon—Allies Inn.

2:30-4:00—Business Meetings of all the Sections. Hotel Willard.

4:00-5:00—Business Meeting of the Association, for new or unfinished business.

5:00—Tea. Grace Dodge Hotel.
Hostess: Mary Lindsley.
Dinner—Open (see footnote 2).

8:00-10:30—General Session Program.
Presiding, Florence H. Smith.
The Psychological Approach to the Patient: Dr. George Draper—Presbyterian Hospital, New York City.
The Relation of Mental Disease to Digestion and Nutrition.
The Psychology and Esthetics of Food Service.

Peace Time Diet Adapted to Days of Disaster: James Fieser, Vice Chairman, American Red Cross, Washington, D. C.

Thursday, November 1, 1928

A choice of four programs have been planned for this day. Choice of trips *must* be indicated on Monday, October 29.

1. Trip to Baltimore with program and luncheon at Johns Hopkins Hospital.

10:00 a.m. Arrive in Baltimore.

10:30 a.m. General Session: Phyllis Dawson Rowe, presiding.

New Problems in Nutritional Research: Dr. George Walker, Baltimore.

(One other prominent speaker will appear on the program.)

12:30 Luncheon

Address of Welcome: Dr. Winford H. Smith, Superintendent, Johns Hopkins Hospital. Greetings from Baltimoreans.

1:30 p.m. Visits to other institutions in the city.

Three trips:

(a) Johns Hopkins and Church Home and Infirmary.
Tea.
Drive through Druid Hill Park.

(b) Cafeteria at City College.
State Normal School, Towson, Maryland.
Sheppard and Enoch Pratt Hospital.
A trip around Loch Raven.

(c) The Refectory.
Lexington Market.
University Hospital.
Wyman Park and Charles Street.
Union Memorial Hospital.
Tea.

2. Trip to Walter Reed Hospital with program similar to the one planned by Miss Rowe at Johns Hopkins will be arranged by Grace Hunter, Chief Dietitian.

3 Trip to the Bureau of Home Economics, United States Department of Agriculture. Dr. Louise Stanley, hostess. Afternoon tea.

4. Sight-seeing trip, leaving the Willard Hotel, 9 a.m.

The Public Buildings: United States Capitol, White House, Bureau of Engraving, Pan American Building, National Episcopal Cathedral (Tomb of Woodrow Wilson).

Return for lunch in Washington at 12 o'clock.

Leaving at 1 p.m. Trip continued: Lincoln Memorial, Arlington (Tomb of the Unknown Soldier), Alexandria (Christ Church), Mount Vernon (Washington's Home).

Cost of days trips, $5.00 (does not include lunch but does include entrance fees and tips).

A tea has been planned for the late afternoon.

SPECIAL ASSOCIATION MEALS

Miss Lindsley, in charge of all local arrangements for teas, dinners, etc., has planned that a five-meal coupon book, costing ten dollars, be printed and sold to members for the five special meals scheduled on the program. This will cover all expense connected with these meals, and will make it much easier for the members to register for them and will greatly simplify the work of the local committee in charge. Secure your book immediately on your arrival. Each member is requested to register on Monday for the Special Discussion Group she wishes to join for the Tuesday evening dinner. Topics will be printed in the final program, and there will be a person at the registration desk to record your name with your preferred group. Miss Cooley is in charge of this dinner.

Program Chairman: DR. MARTHA KOEHNE, Director, Department of Nutrition, Presbyterian Hospital, New York City

Publicity Chairman: FLORENCE BATESON, Dietary Department, Johns Hopkins Hospital, Baltimore, Md.

Exhibits: ANNA E. BOLLER, Central Free Dispensary, Chicago, Ill.

Trips: GRACE HUNTER, Chief Dietitian, Walter Reed Hospital, Washington, D. C.

Local Arrangements: CLYDE SCHUMAN, Director, Nutrition Department, Amerian Red Cross, Washington, D. C.

Hospitality: MARY A. LINDSLEY, Managing Director, Grace Dodge Hotel, Washington, D. C.

THE COMMERCIAL EXHIBIT

Anna E. Boller, chairman of Committee on Exhibits, has arranged a most interesting commercial exhibit for the 1928 meeting. One of the outstanding features will be a completely equipped Model Kitchen. Members of the Association should appreciate that a careful study of the various commercial products to be shown is a practical means of keeping up-to-date; the fact that all these products have been approved by Miss Boller's Committee gives assurance of their reliability.

The following is a partial list of the exhibitors:

American Honey Producers' League, Laramie, Wyoming. The League will present at your convention a cross-section of the apiary products of a fifty million dollar national honey crop. It is a rare privilege to present to the dietary authorities the original, primitive sweetening agent of the human race and the one which today stands pre-eminently above all others in dietary and therapeutic properties. Since the League is not of itself a commercial institution, we will exhibit the commercial products of affiliated honey marketing agencies. It will be our pleasure to furnish information upon honey to any dietitians. The League is an educational agency at your service.

The Battle Creek Food Company, Battle Creek, Michigan. The Battle Creek Food Company will exhibit a full line of the Battle Creek Sanitarium Health Foods. We will have on display special products for every dietetic need. Upon request you will receive a copy of our book "Diet Helps," containing charts, tables and formulas which are valuable to the dietitian. Register at our booth and we will send you our dietitian's complimentary assortment of Battle Creek Sanitarium Health Foods.

California Fruit Growers Exchange, Los Angeles, California. The Sunkist booth at the 11th Annual Exhibit of the American Dietetic Association will be in charge of Miss Ruth Bowden, Consulting Dietitian, and Miss Elizabeth Hayward, Dietitian, for the California Fruit Growers Exchange. An assortment of Sunkist educational literature will be on display at booth No. 21. Miss Bowden spent the past several months on a lecture tour on the value of fruits and vegetables in the diet. Miss Hayward, a new addition to the Exchange's dietetic staff, has an excellent back-ground of training and experience, and with Miss Bowden is responsible for the complete and authentic dietetic literature distributed by her organization.

Calumet Baking Powder Company, Chicago, Illinois. Calumet Baking Powder Company will display their educational material at booth No. 26. This booth will be of particular interest to all dietitians as the materials which will be shown are the results of scientific research, containing valuable pointers to everyone interested in the preparation of foods. Miss Camilla Laws, Director of Home Economics Department, will be in charge and will be delighted to meet the visiting delegates.

R. B. Davis Company, Hoboken, New Jersey. Cocomalt will be exhibited and samples dispensed by a representative of the R. B. Davis Company to visiting dietitians and friends so its quality and flavor may be judged. Questions will be gladly answered regarding the scientific back-ground and clinical success of Cocomalt. Cocomalt is a new food drink manufactured by an exclusive scientific process. Cocomalt adds to the diet the essential and necessary vitamins; mineral matter such as calcium, phosphorous and iron; also milk protein, carbohydrates, fats, etc., in the right proportion to aid in the building of strong bones, muscles and sound teeth. Made by the makers of Davis Baking Powder.

Evaporated Milk Association, Chicago,

Illinois. Evaporated milk has been on the market about 40 years. Yet only comparatively recently has attention been given to its unique uses in the diet of convalescents, infants and children as well as adults. That it is unusually nutritious, economical and convenient will be demonstrated. Foods will be exhibited showing how a higher concentration of nutrients can be incorporated in the diet by the use of evaporated milk than by using bottled milk. Nourishing drinks designed to build up the weakened body will be prepared from the concentrated non-proprietary food. Diets for children and adults will be demonstrated, and the methods of preparing the foods.

The J. B. Ford Company, Manufacturers of the Wyandotte Cleaning Products, will occupy booth No. 20 at the convention of the American Dietetic Association to be held at Washington, D. C., October 29 to 31. The following Wyandotte Products will be exhibited:

Wyandotte Sanitary Cleaner and Cleanser—for washing dishes, glassware, and silverware, and for all general kitchen and dietary cleaning.

Wyandotte Detergent—for mopping floors of all kinds. Including rubber floors, for washing painted surfaces for cleaning marble, and for the cleaning of tile and enamel.

Wyandott Yellow Hoop—for use in institutional laundries.

We thank you very much for your courtesy in this and we trust that this material reaches you in time.

Horlick's Malted Milk Corporation, Racine, Wisconsin. Horlick's Malted Milk Corporation, of Racine, Wisconsin, promises some interesting data in connection with its exhibit at the convention in October. Recent feeding tests in which Horlick's Malted Milk (both natural and chocolate flavor) has been given to under-weight school children with astonishingly good results, will be described by the Horlick representative.

Institute of American Meat Packers, Chicago, Illinois. The exhibit will include copies of scientific and other literature, charts and posters available to dietitians. A special feature will be small models of meat which can be used in different phases of teaching dietetics, particularly for outpatient food clinics. Bibliographies and the most recent information on the use of liver and other meats in normal and special diets will be available. The booth will be in charge of persons trained in nutrition and dietetics.

The International Nickel Company, New York City, New York. The International Nickel Company's exhibit will feature the advantages and applications of Monel Metal in food service equipment. The wide variety of Monel Metal installations and fixtures will be exhibited by means of an automatic projection machine. Pure solid nickel utensils will also be displayed. A Directory listing the companies exhibiting equipment constructed of Monel Metal will also be a part of the exhibit and these companies will also display the Monel Metal emblem.

Journal of Home Economics, Baltimore, Maryland. Journal of Home Economics, the professional monthly magazine of the American Home Economics Association, publishes authoritative articles on food and nutrition, institutional management and other subjects related to the problems of the dietitian or the institutional executive. Our contributors are recognized authorities who give you the benefit of their experience and the results of their research. If you are not familiar with this publication visit our booth and get a sample copy.

The Kellogg Company, Battle Creek, Michigan. Dietitians who are interested in a coffee which may be used in normal as well as special diets are invited to call at Booth No. 13 in the commercial exhibit of the American Dietetic Convention. The Kellogg Company of Battle Creek, Michigan, will have an exhibit of Kaffee Hag Coffee as well as the Kellogg Cereals. Kaffee Hag is real coffee from which 97 per cent of the caffeine has been removed. Visitors at the booth will be served with this delicious decaffeinated coffee and All-Bran muffins.

The Mellin's Food Company, Boston, Massachusetts. The Annual meetings of the American Dietetic Association offer unusual opportunities for Dietitians to discuss freely matters directly concerning products which they find of advantage to employ in their professional work. This is the outstanding reason for the Mellin's Food Company's exhibit and from this viewpoint a most cordial invitation to visit space No. 15 is extended to all Dietitians attending this year's gathering.

National Child Welfare Association, New York, New York. An exhibit of posters which deal with health and dietetics. It will be of interest to dietitians and members of allied professions. These silent teachers present accurate information about foods and health, in attractive picture form. Orders will be taken for future delivery.

E. L. Patch Company, Boston, Massachusetts. Interest continues to grow in cod liver oil as the richest available source of vitamins A and D. Much of the pioneer work in the manufacture and biological testing of cod liver oil in this country has been done by the E. L. Patch Company of Boston, Mass. Their exhibit at booths Nos. 3 and 4 will be of particular interest because here will be found first hand information regarding the manufacturing of potent medicinal cod liver oil and the method employed in the laboratory for the biological assay for vitamins A and D. In addition to this interesting information regarding cod liver oil the Patch Company will send to all who register at their booths a trial bottle of Nepto Lotion which has received professional recognition. Be sure to visit the Patch Company exhibit.

Pattee's Practical Dietetics, Mt. Vernon, New York. Miss Pattee has recently devoted eight months to the study of the dietetic situation both in this country and abroad. Much information gained has been incorporated in the 17th edition of Pattee's "Practical Dietetics" now in preparation, to be entirely revised, rewritten and retyped. A special feature is the inclusion of latest theory by dietitians and professors of Home Economics and diets in current use by eminent physicians in leading hospitals. With a view to saving the time of the dietitian in calculating specific diets, new tables have been included showing average servings with organic composition and content of calcium, phosphorus, iron, salt and vitamins. The teaching value has been still further improved. Price $2.75, including "Teacher's Guide."

Postum Company, New York City, New York. At the Postum booth will be found a display of the materials on health and nutrition which are available without charge to dietitians and home economists. There will also be a complete display of the Postum products: Postum, Grape-Nuts, Post's Bran Flakes, Post Toasties, Jell-O, D-Zerta, Chocolate Pudding Powder, Swans Down Cake Flour, Minute Tapioca, Baker's Coconut, Walter Baker's Chocolate, Baker's Breakfast Cocoa, Log Cabin Syrup, and Sanka Coffee.

Read Machinery Company, York, Pennsylvania. The Read Machinery Company will exhibit in Booth No. 8 a small 10-quart Electric Mixing Machine, which has been found to be very useful in Diet Kitchens. This small machine takes care of practically every mixing, beating, whipping, mashing, and grinding operation, and it is one of the most useful pieces of equipment to be had. Booth will no doubt be in charge of Mr. H. Read and Mr. O. R. Read. A small Read Mixing Machine will also be shown in actual operation in the Model Kitchen.

W. B. Saunders Company, Philadelphia, Pennsylvania. W. B. Saunders Company will exhibit a complete line of their list of works to those interested in Dietetic and Nursing Fields. Of particular importance will be: Wood and Weeks Dietetics; Wheeler and Wheeler's Dietotherapy; Friedenwald and Ruhrah's Dietetics; A large work on Dietetics by the same authors; McLester's Nutrition and Diet; Williams' Anatomy and Physiology; Wilder's Diabetic Primer; Carter's Diet Lists, and a number of other new books and new editions in these fields.

The Swartzbaugh Manufacturing Company, Toledo, Ohio. Food flavors and food values are retained to better advantage in thermos

type food conveying equipment than any other. Ideal Food Conveyor systems employ this thermos principle exclusively. The thermos principle preserves the moisture and palatability of food over a considerable period of time. Food does not dry out. Information regarding modern methods of food service is contained in an attractive catalog published by The Swartzbaugh Manufacturing Company, Toledo, Ohio, manufacturers of Ideal Food Conveyor Systems.

S. C. Teichs Company, Chicago, Illinois. America's most delicious Gelatine Dessert. Our genuine fruit flavored Jelly Powders are not only so-called, but contain the actual fruit flavors whose name they bear, and there are none in the market that have given such satisfaction, as attested by the constantly increasing users in hospitals. The gelatine used in our Gelatine Dessert is one of the highest grade. Also our Chocolate and Butter Scotch Puddings are wholesome and nutritious. A visit to our booth will be greatly appreciated.

Welch Grape Juice Company, Westfield, New York. Served in many delicious ways, Welch's Grape Juice plays a prominent part in the diet of the well and for those who are sick or convalescent. It contains the mineral salts that children need to build up their bodies; fruit sugar—health-giving qualities of ripe Concords. Because it is available any time, it is easy to prescribe. Welch's Tomato Juice—another quality product—is invaluable as a vitamin source in infant feeding. Clear and golden in color, just the juice of ripe tomatoes, filtered after pressing. It contains vitamins A, B and C.

John Sexton and Company, Chicago, Ill. The dietitians are invited to Booth No. 25, where many products will be on display. There will be a large variety of products packed especially under the Edelweiss label, which has become the symbol for quality and economy in foods.

Alp Rose canned fruits and vegetables, packed without sugar or salt for restricted diets, will be of interest as the new nine ounce can will be shown for the first time. This new size will be especially attractive to dietitians in hospitals where the number of restricted diets are few, and for the patient who is desirous of having variety after leaving the hospital.

The Electrically Equipped Model Kitchen, planned by the Edison Electric Company with the coöperation of other equipment firms, is a special feature for our 1928 exhibit. A great deal of time, effort and money is being spent to make this of the greatest interest to dietitians. Several pieces of electric equipment will be shown for the first time. An engineer will be there to answer questions and give help with equipment problems. Plan to allow ample time to visit this exhibit, as it will be an opportunity which should not be overlooked.

BOOK REVIEWS

The Foundations of Nutrition. By Mary Swartz Rose. Pp. 501. Price $2.75. New York: The Macmillan Company, 1927.

Any one who reads this book will know that it was written by a thorough student of nutrition, by a teacher who cannot be surpassed in breadth of experience and in ability, and by a very skillful writer. The hundreds of people who know the author as colleague, teacher, author, or friend will fully appreciate how admirably all these qualities are combined.

The book should be in the possession of all public and private school teachers who are interested in the health of their pupils. Public health nurses and social service workers will likewise find in it a wealth of information. It will without doubt be used as a text or reference book in general dietetics courses in high schools, normal schools, colleges and universities. The many pictures and graphs and interestingly written researches in the field of nutrition and dietetics make the book fascinating to read and add greatly to its practical value. The style is extremely simple and non-technical, yet strictly scientific throughout, and the book will be easily understandable by the non-chemically trained reader.

The book begins with a most practical discussion of the whole problem of the energy needs of people of all ages and of how these needs may be met under a variety of circumstances of living. Proteins, ash, and water are classed as body builders and full recognition given to the needs of people of all ages for such constituents in their food. The next two chapters deal with body regulators, including minerals, water, and vitamins. The author introduces this subject by comparing the function of body regulators as regards the cells, with the rôle of all the various public utilities which today are such a necessary part of the life of each individual living in a city. An amazing amount of information is given in these few chapters, but given in a most delightful way. The last two chapters are given over to the consideration of the contributions to the diet made by various types of food materials, and to suggestions connected with the construction of an adequate diet for people of different ages and living on varying incomes. In this portion of the book the center of interest and instruction is the *share*. The author uses Sherman's standards of 3000 calories as the average daily requirement of energy for adults, 75 grams as the daily need for protein, 0.67 gram for calcium, 1.32 grams for phosphorus, and 0.015 gram for iron. A *share* in each case is the amount of a given article of food which yields 1/30 of these various amounts. A share of energy is 100 calories, one of protein is 2.5 grams, of calcium 0.023 gram, of phosphorous 0.044 gram, and of iron 0.0005 gram.

Several years ago the Red Cross Nutrition Service published a pamphlet in which the values of foods in the above respects were expressed in terms of the percentage of the same total daily needs represented by average helpings of each of the various common articles of diet. Dietitians and people in general certainly need information on the nutritive value of foods in a readily usable form. With two such excellent methods available there should be no difficulty in teaching food values to different groups of people.

Extensive bibliographies are given throughout the book.

MARTHA KOEHNE, Ph.D.,
Presbyterian Hospital, N. Y. C.

Dietetics for the Nurse. By I. Stewart, S.R.N., Certificated King's College, University of London, and Royal Infirmary, Aberdeen, Examiner for the General

Nursing Council, Scotland. London: The Scientific Press, Faber and Gwyer, Ltd., 1928.

This book is based on the author's lectures on dietetics to pupil nurses and on the syllabus of the General Nursing Council. It covers: the principles of dietetics; how the body uses food; foods and their values; diet in disease; recipes, and an appendix consisting of tables of weights and measures, food tables, and average weights and heights.

The subject matter is well presented. This volume should be of especial interest to American dietitians since it outlines methods of teaching and diet therapy in vogue abroad. Among the many points of interest one is pleased to find that "treacle posset" and raisin tea are still holding their time-honored place.

M. P. H.

Getting Well and Staying Well. A book for tubercular patients, public health nurses and doctors. By John Potts, M.D. Price, $2.00. Pp. 223. St. Louis: The C. V. Mosby Company, 1927.

The author has given detailed instructions, written in a simple non-technical style, for the care of the tubercular patient.

This book should appeal to dietitians specializing in the care of such patients, since it gives well-rounded and orthodox information on diet therapy as well as the general care of the patient.

Opportunities for Women Trained in Home Economics. A study made in Minneapolis and St. Paul. Price, thirty-five cents. The Woman's Occupational Bureau, Minneapolis, Minnesota, 1928.

This booklet covers a survey of positions held by women trained in home economics, and potential positions. The facts were gathered from one hundred and seventy-nine trained women engaged in teaching, dietetics and business. The requirements for obtaining positions, characteristics and qualifications of present occupants of positions, nature and characteristics of the work in the various positions, salaries, living expenses and promotion possibilities are covered.

The information given should prove of great value to the student, or prospective student, of home economics.

Reviews of the following books will appear in the next issue of the JOURNAL:

Nutrition. By Walter H. Eddy, Ph.D., Professor of Physiological Chemistry, Teacher's College, Columbia University. Price, $2.50. Baltimore: The Williams & Wilkins Company, 1928.

Food Infections and Food Intoxications. By Samuel Reed Damon, A.M., Ph.D., Associate Professor of Bacteriology, The Johns Hopkins University, School of Hygiene and Public Health. Price, $4.00. Baltimore: The Williams & Wilkins Company, 1928.

Nutrition in Health and Disease for Nurses. By Lenna Cooper, Edith M. Barber and Helen S. Mitchell. Price, $3.00. Pp. 512. Philadelphia: J. B. Lippincott Company, 1928.

Preparation of Scientific and Technical Papers. By Sam F. Trelease and Emma Sarepta Yule. Price, $1.50. Second Edition, revised and enlarged. Pp. 117. Baltimore: The Williams & Wilkins Company, 1928.

CURRENT LITERATURE[1]

MARJORIE HULSIZER COPHER

American Journal of Diseases of Children:

March, 1928.

P. 392. The effect of parathyroid extract on mineral metabolism in infantile tetany. A. T. Shohl, A. M. Wakeman and E. Y. Shorr.

P. 411. Growth standards of height and weight for girls in private schools. H. Gray and C. Gower.

P. 414. Celiac disease. E. L. Bauer.

April, 1928.

P. 557. Chemical changes occurring in the body as the result of certain diseases. The effects of diarrhoea, vomiting, dehydration and oliguria on the acid-base. Balance of the plasma of infants with mastoiditis. A. F. Hartman.

P. 576. Mineral metabolism on a high mineral diet. A. T. Shohl, A. M. Wakeman and E. Y. Shorr.

P. 590. The frequency of severe rickets in New Orleans and vicinity; an attempt to correlate some of the responsible factors. C. T. Williams.

May, 1928.

P. 753. Growth studies of children with diabetes mellitus. J. D. Boyd and M. V. Nelson.

P. 811. Vitamin requirements of nursing young. II. The production of beriberi in the nursing young associated with hemorrhages. B. Sure and S. J. Schilling.

P. 856. Metabolism of undernourished children. IV. Calcium metabolism. Chi Che Wang, M. Koucher and Margaret Frank.

American Journal of Hygiene:

March, 1928.

P. 297. Iodine deficiency in water supply as an index of goitre. F. F. Smiley.

P. 386. Sanitary quality of some commercial milk powder. J. H. Shrader, C. L. Ewing, H. A. Karff and L. W. Conn.

American Journal of Physiology:

March, 1928.

P. 350. Chemical changes in the blood during fasting and subsequent refeeding. II. Inorganic components. S. Morgulis. With the technical assistance of V. L. Bollman.

P. 378. A. Calcium and ultra-violet radiation with serum calcium. B. Calcium utilization on a calcium-poor diet with ultra-violet radiation. L. T. Fairhall.

April, 1928.

P. 603. Penetration of ultra-violet rays through clothing materials. C. C. Dozier and H. Morgan.

P. 675. The energy metabolism of women while ascending or descending stairs. F. G. Benedict and H. S. Parmentor.

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[1] Received too late for publication in the June JOURNAL.

May, 1928.

P. 33. A study of the effect of yeast upon metabolism. E. U. Still and Elizabeth M. Kock.

P. 45. The energy factor in relation to food intake. Experiments on the dog. G. R. Cowgill.

P. 103. A study of the inorganic constituents of the body with respect to their stimulating effect on sugar metabolism. W. E. Burge and A. M. Estes.

American Journal of Public Health:

March, 1928.

P. 313. Hunting the vitamin. W. H. Eddy.

April, 1928.

P. 476. The residual germicidal action of water treated with ultra-violet light. J. F. Norton.

May, 1928.

P. 587. Endemic goitre and public health. O. K. Kimball.

P. 602. Bacterial flora of ground market meats. I. C. Geiger, F. E. Greer and J. L. White.

Archives of Pediatrics:

February, 1928.

P. 83. Use of acidified milk on permanent diet.

March, 1928.

P. 190. Bone development in diabetic children. L. B. Morrison and I. K. Bogan.

April, 1928.

P. 254. The child who will not eat. J. Rosenthal.

Hospital Management:

March, 1928.

P. 70. Some comments on food service and equipment. O. T. Webber.

April, 1928.

P. 72. Problems of nurse dietetics.

Journal of American Medical Association:

February 4, 1928.

P. 364. Pellagra among alcoholic addicts. J. V. Klander and N. W. Winkelman.

February 11, 1928.

P. 459. Food poisoning.

February 18, 1928.

P. 504. Effect of carbon arc irradiation on infants. L. B. Barenberg and J. M. Lewis.

P. 535. An epidemic of albuminuria. P. M. Washburn.

P. 539. The origin of urinary proteins. G. Andrews and W. A. Thomas.

February 25, 1928.

P. 601. Medical aspects of colitis. W. J. Mallory.

March 10, 1928.

P. 737. Dextrose in diseases of children. H. N. Sandford and P. L. Heitmeyer.

P. 764. Outbreaks of botulism in 1927.

March 31, 1928.

P. 1010. Metals in our food. F. B. Flinn and J. M. Inouye.

P. 1014. The development of deficiency disease during therapeutic diets. P. B. Davidson.

April 7, 1928.

P. 1115. Extreme hyperglycemia in diabetic coma with recovery. W. S. Curtis and Ira M. Dixon.

May 5, 1928.

P. 1427. The ketogenic diet. M. G. Peterman.

May 12, 1928.

P. 1527. Pernicious anemia; report of case treated with high liver diet for approximately four years. E. H. Mason.

Journal of Biological Chemistry:

March, 1928.

P. 591. The fundamental food requirements for the growth of the rat. III. Yeast and yeast fractions as a supplement to synthetic rations. C. Kennedy and L. S. Palmer.

P. 659. Dietary requirements for fertility and lactation. XIII. Storage of fat-soluble vitamins for lactation, with some observations on the cod liver oil requirements of nursing young. B. Sure.

P. 729. The relation of diet to the quality of fat produced in the animal body. W. E. Anderson and L. B. Mendel.

April, 1928.

P. 231. A new differentiation between antineuritic vitamin B and the purely growth-promoting vitamin B. H. M. Evans and G. O. Burr.

May, 1928.

P. 431. Acceleration of growth rates by dietary modifications. A. G. Hogan, J. E. Hunter and H. L. Kempster.

P. 595. The effect of insulin on protein metabolism. A. T. Milhorat and W. H. Chambers.

P. 651. The effects of inadequate vitamin A on the sexual physiology of the female. H. M. Evans.

Modern Hospital:

March, 1928.

P. 144. Ketogenic diet in epilepsy. C. J. Barborka.

May, 1928.

P. 136. Principles of diet. H. Gauss.

NEWS NOTES

The District of Columbia Dietetic Association held a special meeting on Monday Evening, July 30, at the Grace Dodge Hotel, Washington, D. C., to complete local arrangements for the coming Convention.

Clyde Schuman, of the Red Cross Nutrition Service, as Chairman of Local Arrangements, took charge of the meeting and made a full report of the plans initiated at a joint meeting in July with members of the Baltimore Association. She voiced the readiness of the Baltimore dietitians to assist the local group, and told of the welcome being planned for the Convention guests who visit Johns Hopkins Hospital.

The Hospitality Chairman, Mary A. Lindsley of Grace Dodge Hotel, presented a delightful program for the comfort and entertainment of the Convention guests. Her plans included teas with interesting people, a round of breakfasts, luncheons, and dinners at representative hotels and tearooms in and about the city, a visit to the Library of Congress and other places of note, trips to Walter Reed Hospital and to Johns Hopkins Hospital in Baltimore.

These plans were received with enthusiasm by the group, and a committee was appointed to assist Miss Lindsley in carrying out the details of her program.

Miss Hunter of Walter Reed Hospital reported on arrangements for trips, and Miss Bulman of the United States Veterans' Bureau on local publicity and plans for a daily news bulletin during the three days of the Convention.

Various other phases of local arrangements were discussed, and communities formed to carry out the wishes of the group. It was decided that all chairmen should report on the progress of their committees at the next meeting of the District chapter on September 18.

The enthusiastic interest of the entire group showed that the District of Columbia Association is eagerly awaiting a second National Capital Convention, and is striving to make it the best in the history of the American Dietetic Association.

The American Home Economics Association at the annual meeting at Des Moines elected the following officers: president, Margaret Justin, Kansas State Agricultural College; vice-president, Effie I. Riatt, University of Washington; Secretary, Frances Zuill, State university of Iowa. About 1200 persons were registered.

The Catholic Hospital Association of the United States and Canada held its tenth annual convention at Cincinnati, June 17, 18 and 19. The importance of beauty in the hospital was the keynote of the convention.

Anna E. Boller directed the section on dietetics. Among the speakers were: Dr. Wiedemer of the Cincinnati General Hospital, who discussed the liver treatment in pernicious anemia with reports of two cases that had been successfully treated with liver extract. Dr. Cecil Stryker spoke on the treatment of diabetes, reviewing the literature on the subject and emphasizing the need of the patient for accurate knowledge of his disease and the principles of its treatment.

Bertha Beecher of the Christ Hospital, Cincinnati, spoke on purchasing equipment for the dietary department. She felt that the importance of the dietary department could not be minimized, since it represented from 25 to 35 per cent of the total operating costs of the hospital. The kind of served food largely influences the patient's judgment of the merits of the hospital. The importance, then, of good equipment, resulting in a higher

food standard, becomes evident. The speaker made practical suggestions as to the selection of equipment.

The Cincinnati Dietetic Association entertained visiting dietitians at a luncheon. Dr. Caldwell, Executive Secretary of the American Hospital Association, spoke on the value of professional organization. Mrs. Huddleson discussed the importance of professional organization for the dietitian; affiliated organizations—the medical and nursing groups—have reached their present high standards, and value to the community, through professional group loyalty. The dietitian cannot afford to delay identifying herself, professionally, through membership in her National Association.

The Baltimore Dietetic Association elected the following officers for the coming year at the June meeting held at the University of Maryland Hospital: president, Alma Bering, Sheppard Pratt Hospital; vice-president, Anne Merkle, Church Home and Infirmary; secretary, Florence Bateson, Johns Hopkins Hospital; treasurer, Gertrude Riale, Union Memorial Hospital.

Mildred Weaver resigned her position as Out-Patient Dietitian at the Johns Hopkins Hospital on July 31st.

Alice Mary Connolly, therapeutic dietitian at the Johns Hopkins Hospital resigned her position the last of July. Miss Connolly plans to be married in the early fall.

Elfrieda Keubler, dietitian at Sinai Hospital has left to spend four months in Europe.

Phyllis Dawson Rowe has resumed her duties as the Chief Dietitian at the Johns Hopkins Hospital, having recovered from a recent mastoid operation.

A group of the Baltimore Dietitians met with members of the Washington, D. C. Association to formulate plans for the coming convention.

The California State Dietetic Association feels that State registration is an urgent necessity for the dietitian. It will standardize our educational qualifications and protect our rights as a professional group. The assistance and coöperation of every dietitian in the state is needed to forward this movement which is being sponsored by the State Association. A prompt answer to the forms sent out to the hospitals as a survey will be appreciated.

Eloise Hall, chief dietitian at Fairmont Hospital, San Leandro, is giving up her position June 1st, and expects to be married the latter part of the month. Mrs. Reardon, the present assistant dietitian at Fairmont will take her place. Mabel Ludeman of Lawrence, Kansas, will become Mrs. Reardon's assistant.

Mildred Smith of the Educational Department of Horlicks Malted Milk Corporation is working in Northern California, and was a guest at the May meeting of the Northern California Section.

Miss Simpson and Miss Austin began work May 1st as dietitians at the Sutter Hospital, Sacramento.

Bess Bivens of Richmond, Virginia, has been engaged as chief dietitian at the new Peralta Hospital, Oakland. Edna Smith, formerly of Providence Hospital, Oakland, is assistant dietitian at Peralta Hospital.

Miss Van Duesen is leaving San Jose Hospital, on June 10th, to take charge of the teaching of student nurses at the City and County Hospital, Los Angeles.

Elfreida Honneywell, formerly assistant dietitian at Johns Hopkins Hospital, Baltimore, is now located at the Alta Bates Hospital, Berkeley, California.

The Northern section of the California State Dietetic Association was entertained at dinner on Monday, May 14, at the Fairmont Hospital, San Leandro, California, as the guests of the dietitians of that hospital. Mr. A. C. Jensen, superintendent of Fairmont Hospital, and Dr. Bush, superintendent of Arroyo Sanatorium, Livermore, California, were the speakers.

Before dinner the group was shown through the main hospital and the various buildings making up the Fairmont organization which cares for about 750 patients and inmates.

Mr. Jensen in his talk spoke of the reorganization which has taken place at the Fair-

mont Hospital recently. He divided the problem of the hospital into two definite divisions: that of hospital care for chronic and convalescent sick, and that of "home care" for the aged and the infirm.

Dr. Bush told about his work with tubercular patients at the Arroyo Sanatorium and the Dell Valle Preventorium.

Dr. Bush explained the methods used at the Arroyo Sanatorium. As soon as a patient is admitted, he is given twenty-four hours of bed rest. Then exercise is given gradually, a few minutes a day up to one, two, three or even a greater number of hours until the patient is able to go back to normal conditions.

According to Dr. Bush, the same method is used at the Dell Valle Preventorium in the treatment of children, except that they are given a longer rest period and the sun treatment in addition. The diet is a balanced one with plenty of milk.

The Chicago Dietetic Association. Carrie Hoskins left Cook County Hospital June first to become head dietitian at Grace Hospital, Detroit, Mich.

Mae Whitmer is a new assistant at Cook County.

Margaret Fritschel has resigned her position at Presbyterian Hospital, to take effect August fifteenth.

Mrs. Katz is leaving Albert Merritt Billings Hospital September first to join her husband in Vienna, Austria.

Florence Smith, president of the American Dietetic Association, is in the city for part of the summer, teaching diet in disease in the graduate school, University of Chicago.

The Connecticut Dietetic Association is much interested in the report of the questionnaire on Hospital Labor Organization and Turnover to be given at the next meeting.

An appeal has been sent to the various hospitals urging all Connecticut dietitians to attend the Annual Convention at Washington. We are hoping that this will not pass unheeded since the program promises to be unusually interesting.

Hope Perkins, formerly of Lawrence Memorial Hospital, New London, is now at Nassau Hospital, Mineola, L. I.

Alice Cleland who has been manager of a tea room at San Francisco is in charge of the Dietary Department at Lawrence Memorial Hospital, New London. Ruth Watrons, Danbury Hospital graduate, is her assistant.

Viretta Maroney has left Memorial Hospital, New London.

Olea M. Sands, Secretary of the Connecticut Dietetic Association is studying at Teachers College, Columbia University this summer.

Jean Nicol, a graduate of the University of Toronto and of the Ottawa Civic Hospital, is assistant dietitian at the Bridgeport Hospital.

The annual meeting of the Association was held at Grace Hospital, New Haven, when the following officers were elected: president, I. Leslie Hunter, Bridgeport Hospital; vice president, Dolores Garrett, Memorial Hospital, South Manchester; secretary-treasurer, Olea M. Sands, Home Demonstration Agent, Hartford County Farm Bureau, Hartford.

Maniza Moore, hostess of the meeting, was also the speaker, giving a very enlightening report of the St. Louis Convention of the National Association. Those who have had the privilege of attending other annual meeting felt for the time that they were amidst the inspiration and excitement at St. Louis. Miss Moore, indeed, made her report most interesting.

The February meeting was held in conjunction with the Winter meeting of the Connecticut Home Economics Association in the lecture room of the Warren Harding High School, Bridgeport. Luncheon was served in the school cafeteria at 12:30. Miss Ruth Bowden who is with the California Fruit Growers Exchange and who has worked with Dr. Sansum in the investigation and preparation of various diets, then spoke on "Diets Used in Acidosis." The president was able to procure from Miss Bowden pamphlets on the subject which were sent to the various hospitals in Connecticut.

In April, the association met at Hartford Hospital, Hartford, where Louise O. Canham spoke on her work in the Yale School of

Nursing, and Mary Kelly, in charge of the Hartford High School Cafeterias, spoke on the administration of the group. The meeting was a most profitable one. A letter was read from Quindara Oliver relative to our affiliation with the National Association. The constitution of the local association is now being revised to enable us to meet the requirements of the National Association.

Myrtle Scott, formerly of Griffin Hospital, Derby, left for her home in Fredencton, N.B., Canada, where she was married in June to Bernard Haggerman.

Frieda Ritcey, Bridgeport Hospital graduate and administrative assistant at that hospital for the past year, has gone to Griffin Hospital, Derby.

Louise Canham of the Yale School of Nursing and Helen Resch of the Private Pavilion of the New Haven Hospital sailed for Europe on June 10th where they will remain for three months. Miss Resch on her return, will enter Columbia University to work for her master's degree.

Jessie Nuncaster, a graduate of the University of Maryland and of Fifth Avenue Hospital, New York, is now Special Diet Assistant at Grace Hospital, New Haven.

Doris Drury, formerly Therapeutic Assistant in Grace Hospital, New Haven, is at her home in Northampton, Massachusetts.

Marian Hayward who has been assistant at Waltham Hospital, Waltham, Massachusetts, is substituting in Grace Hospital, New Haven, during the summer months.

Winifred Teachout of Montpelier, Vermont, former Peter Bent Brigham Hospital student, has accepted a position as Therapeutic Assistant at the Bridgeport Hospital, Bridgeport.

Frieda Reuman who has been first assistant at the Bridgeport Hospital for the past three and one-half years, has accepted a post at Vassar Hospital, Poughkeepsie, New York, where she will be near her mother who is residing there.

Helen O'Donnell, Pratt Institute graduate, has taken Ann Cleary's place in charge of special diets at St. Francis' Hospital, Hartford.

Dorothy Manning, formerly of Meriden Hospital, is now with Childs' Restaurants, New York City.

Massachusetts Dietetic Association. At the annual business meeting held in May, the following officers were elected for 1928–1929: President, Margaret McGovern, Boston City Hospital; Vice President, Rosina Vance, Massachusetts General Hospital; Corresponding Secretary, M. Louise Elliott, Neighborhood Kitchen; Recording Secretary, Alice Van Dyke, Cambridge Hospital; Treasurer, Hilda French, Deaconess Hospital; Parliamentarian, Evelyn Pearson, Bradford Academy.

The program for the year under the direction of Gretchen McMullen promises to be good. Many interesting field trips in addition to regular monthly meetings are planned by the program committee.

Cards have been received announcing the wedding of Charlotte Raymond, one of the Boston Dispensary Food Clinic Staff, to Mr. Schwab.

Gertrude Spitz has resigned as Out-Patient Dietitian of the North End Diet Kitchen, Massachusetts General Hospital.

Alice Thompson has been appointed to succeed Doris Keller as Assistant Dietitian at the Peter Bent Brigham Hospital. Miss Keller resigned in June.

Kathryn Curran has been appointed Assistant Dietitian at the Boston City Hospital.

Pauline Hyman and Eleanor Dow have been appointed assistants at the new Beth Israel Hospital, which opened the first of August. Eva Hunt is Chief Dietitian.

Minnesota Dietetic Association. Grace Schweiger has accepted a position as Chief Dietitian, St. Luke's Hospital, Spokane, Washington. Miss Schweiger was formerly at St. Luke's Hospital, St. Paul, Minn. Lillian Hoff has taken Miss Schweiger's place.

Florence Richardson resigned from the U. S. Veterans' Hospital, Minneapolis, Minnesota, and has taken a position as Dietitian at the Dutch Coffee Shop, Nicollet Hotel, Minneapolis.

Dorothy Bros of St. Andrews Hospital,

Minneapolis, has resigned to be married. Mrs. Essie H. Wessenberg took Miss Bros' place.

Lois Hurlbutt, Dietitian in charge at the Minneapolis General Hospital resigned to be married in August. Jeanette Goldthorpe has been promoted from assistant to Dietitian in Charge at the Minneapolis General Hospital. Miss Goth has taken Miss Goldthorpe's place.

Theodora Goodrich has resigned, effective September 1, from the U. S. Veterans' Hospital, Fort Snelling, Minn. Miss Goodrich is going to remain at her home in Anoka, Minnesota, indefinitely.

Irene Dahl resigned as Dietitian at the Swedish Hospital, Minneapolis, and has gone to Europe to study voice.

Irene Andrews has accepted a position as Assistant Dietitian at the Northern Pacific Hospital, St. Paul, Minn.

Thelma Wirtenberger, resigned from the Gillette State Hospital and was married. Clara Fanning is taking her place until fall when Virginia Bailey from the Montifiore Hospital, New York City, will take that position permanently.

Hazel Sullriede has accepted a position as Assistant Dietitian at the University Hospital, Minneapolis, Minn.

The New York Association of Dietetians held their last meeting of the year 1927–1928 on May 14. The subject of the meeting was personnel management. A report was given of the study of "Labor Costs, Labor Organization and Labor Turnover in the Food Service Departments of hospitals in New York City," which has been carried on this year by a committee on administration of the association, in coöperation with the section on administration of the American Dietetic Association.

Mr. Lyons, of the Hospital Personnel Bureau, then spoke briefly on the subject of turnover. Mr. Lyons said that while in his present work he is dealing only with the higher grades of hospital employee, his years of experience in hospital administration and personnel study have led him to the conclusion that the following facts are among the more important causes of high labor turnover in hospitals:

(1) Lack of opportunity for promotion.

(2) Interference of the central administrative office in employment of personnel, rather than leaving the matter to the heads of departments.

(3) Lack of ambition in the type of individual employed.

(4) Personality of the head of the department, and lack of interest on his or her part in the individual employee.

Miss Nellie Reeder followed with a brief summary of the responsibility of the executive in personnel management. She emphasized the necessity for exact knowledge on the part of the executive, of the work to be done, and for precision in the giving of instructions. She also emphasized the change in point of view which has come about in the last few years, and which is shown by the present use of the word "instructions" in place of "orders" and "responsibility" in place of "authority."

A business meeting followed, at which the officers of the association for the coming year were elected.

Mary S. Telford has resigned her position as assistant dietitian at Vassar Brothers Hospital in Poughkeepsie, N. Y., and returned to her home in Owen Sound, Ontario, Canada. Frieda Reuman, B.S., late of Bridgeport General Hospital, succeeds Miss Telford.

The Northern California Dietetic Association met Monday, July 30, at the Women's Faculty Club, University of California with a dinner at 7 o'clock. Miss Lulu Graves, consulting dietitian of New York City, gave an interesting talk about the various phases of her work.

The annual election of officers took place at this meeting.

Susan Scott, formerly assistant dietitian at Fairmont Hospital, San Leandro, has accepted a position at San Jose Hospital, San Jose. Miss Scott enjoyed a vacation of five months at her home in Madisonville, Kentucky.

Helen Anderson and Gertrude McLeod of the San Francisco Hospital, San Francisco, began work at the Fabiola Hospital, Oakland, on August 1st.

Elizabeth Blakeslee has resigned at Woodland Clinic, Woodland, and expects to be married early in September.

Miss F. B. Hagerty has given up her position at Fabiola Hospital to become dietitian at Woodland Clinic, Woodland.

Phila Henson has resigned at the St. Francis Hospital, and expects to attend the University of California at Berkeley this fall.

NEW MEMBERS

(February, March, April, May, June and July)

*Abraham, Evelyn.....Belview, Minn.
*Addison, Mary.....Western Pennsylvania Hospital, Pittsburgh, Pa.
Adelson, Sadye.....Jewish Welfare Society, Philadelphia, Pa.
Anderson, Dorothy.....1321 Colley Ave., Everett, Wash.
*Anderson, Evelyn.....640 Arlington Place, Chicago, Ill.
Atwater, Ruth.....1739 H St., N. W., Washington, D. C.
*Ballard, Jennie.....Montefiore Hospital, New York City
Barnes, Pearle.....Clifton Springs Sanitarium, Clifton Springs, N. Y.
Baycroft, Helen.....Aurora, Ontario, Canada
*Becker, Beula.....Tremont, Ill.
Bell, Edna.....St. Luke's Hospital, Denver, Colo.
*Berg, Dorotha.....1815 Wisconsin Ave., Milwaukee, Wisc.
†Bingham, Nancy.....524 N. Francis Ave., Madison, Wisc.
*Bingaman, Gwendolyn.....Marshalltown, Iowa
*Bishop, Helen.....2310 Chestnut St., San Diego, Calif.
Bostian, Margaret.....John Burroughs School, Clayton, Mo.
Bowen, Helen.....Presbyterian Hospital, Denver, Colo.
Bradfield, Dorothy.....Homeopathic Hospital, Washington, D. C.
*Brown, Helen.....1316 National Ave., Rockford, Ill.
*Brown, Martha.....5537 University Ave., Chicago, Ill.
*Brown, Mary.....Montefiore Hospital, New York City
Burnett, Dr. Francis.....205 Beacon St., Boston, Mass.
Burns, Kathleen.....509 S. Honore St., Chicago, Ill.
Carroll, Mary.....St. Joseph's Hospital, Reading, Pa.
*Childres, Clara.....Taylors, S. C.
*Colwell, Leila.....904 Bluemont, Manhattan, Kansas
*Comley, Katherine.....No. 321–325 Oak Grove, Minneapolis, Minn.
*Cowan, Lura.....Middletown, Mo.
*Cox, Helen.....Fowler, Ind.
Cozad, Florence.....Mt. Sinai Hospital, Cleveland, Ohio
Dees, Daisy.....1100 Mission Road, Los Angeles, Calif.
DeLano, Beulah.....Tampa Municipal Hospital, Tampa, Fla.
†Dow, Eleanor.....Beth Israel Hospital, Boston, Mass.
Dresslar, Martha.....University of Washington, Seattle, Wash.
Drewry, Norma.....Cook County Hospital, Chicago, Ill.
*Dunlap, Ann D.....Vermillion, S. D.
*Easter, C. Lucille.....401 Delaware Ave., Bartlesville, Okla.
†Evans, Emily.....4141 Clarendon Ave., Chicago, Ill.
*Fahning, Clara.....Gillette State Hospital, St. Paul, Minn.
*Flanigan, Thelma.....Mary Sherman Hospital, Sullivan, Ind.
Flitcroft, Dorothy.....Paterson General Hospital, Paterson, N. J.
†Foster, Mrs. Rhoda.....Stamford Hall, Private Sanitarium, Stamford, Conn.
Frazier, Ruth.....St. Luke's Hospital, Jacksonville, Fla.

*Freytag, Marie.....University Hospital, Iowa City, Iowa
*Gartin, Mildred G.....Clifton Springs Sanitarium, Clifton Springs, N. Y.
*Gartside, Virginia.....5537 University Ave., Chicago, Ill.
Geldreich, Gertrude.....Good Samaritan Hospital, Cincinnati, Ohio
*Gottlieb, Regina.....Pleasanton, Kansas
Grams, Elizabeth.....1429 Main St., La Crosse, Wisc.
†Greaves, Margaret.....2123 Eye St., N. W., Washington, D. C.
*Gregory, Ada.....Wesley Long Hospital, Greensboro, N. C.
Haas, Marjory.....Mater Misericordiae Hospital, Sacramento, Calif.
*Hanford, Isabel.....612 N. Central Ave., Chicago, Ill.
*Hanson, Helen.....729 Maryland Ave., Syracuse, N. Y.
Harris, Fern.....240 E. Delaware Place, Chicago, Ill.
Hartquest, Mary.....1004 "K" St., Aurora, Nebr.
Helms, Margaret.....St. Mary's Hospital, Quincy, Ill.
Hockenberry, Wilda.....University Hospital, Columbus, Ohio
Hoff, Marie.....Bismarck Hospital, Bismarck, N. D.
*Hoppock, Ruth.....University Hospital, Oklahoma City, Okla.
Horner, Jennie.....Grainfield, Kansas
Horst, Marie.....Danbury Hospital, Danbury, Conn.
†Hubbard, Iva.....Park Avenue Hospital, Rochester, N. Y.
*Hulick, Delma.....Cincinnati General Hospital, Cincinnati, Ohio
Hunt, Beatrice.....Virginia Mason Hospital, Seattle, Wash.
*Hunt, Irma.....Roadhouse, Ill.
Irwin, Mary.....Alabama Baptist Hospital, Selma, Ala.
Jeffs, Kathleen.....T. Eaton Co., Ltd., Montreal, Canada
Jeffries, Lucy.....Letterman General Hospital, San Francisco, Calif.
Jessup, Mildred.....176 Palisade Ave., Jersey City, N. J.
*Johnson, Mallvina.....229 Paris Ave., Rockford, Ill.
*Kahn, Ruth.....Barnes Hospital, St. Louis, Mo.
Kimball, Elizabeth.....Arnot-Ogden Memorial Hospital, Elmira, N. Y.
†Klaus, Olive.....4478 Pearl Road, Cleveland, Ohio
*Klute, Helen.....17 W. Ash St., Three Oaks, Mich.
*Knepper, Gertrude.....Skidmore, Mo.
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†Lambert, Katherine.....1815 Wisconsin Ave., Milwaukee, Wisc.
*Larson, Myrtle.....Iowa Lutheran Hospital, Des Moines, Iowa
*Lay, Besse.....Walter Reed General Hospital, Washington, D. C.
Linberger, Helen.....Flushing Hospital, Flushing, N. Y.
†McCain, Lillian.....Flint Goodridge Hospital, New Orleans, La.
*McDougall, Alma.....Hurley Hospital, Flint, Mich.
McGill, Alice.....New York Edison Co., New York City
*McIntyre, May.....Evanston Hospital, Evanston, Ill.
*McKean, Kathryn.....Scripps Metabolic Clinic, La Jolla, Calif.
MacIntyre, Irene.....Samaritan Hospital, Troy, N. Y.
†MacLean, Helen.....Centre County Hospital, Bellefort, Pa.
*Maher, Eleanor.....2029 Wayne Ave., Scranton, Pa.
*Mankin, Jane.....Gallinger Municipal Hospital, Washington, D. C.
Margaret, Sister Mary.....St. Anthony Hospital, Oklahoma City, Okla.
†Marin, Maude.....U. S. Veterans' Hospital, Dwight, Ill.
*Masson, Margaret.....Frederick Ferris Thompson Hospital, Canandaigua, N. Y.

*Miller, Alice.....1753 W. Congress St., Chicago, Ill.
*Miller, Leah.....1801 N. Smelter, Pittsburg, Kansas
*Moody, Esther.....Rex Hospital, Raleigh, N. C.
Moore, Dorothy.....Children's Hospital, Iowa City, Iowa
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†Naismith, Jessie.....Ottawa Civic Hospital, Ottawa, Canada
*Ohlson, Dorotha.....5535 Delmar, St. Louis, Mo.
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†Peterson, Sister Marie.....Immanuel Deaconess Institute, Omaha, Nebr.
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*Powers, Mary.....519 W. 121st St., Apt. C-1, New York City
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Richburg, Bama.....Draper Hall, Oconomowac, Wisc.
†Ritcey, Frieda.....Bridgeport Hospital, Bridgeport, Conn.
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*Satterlee, Dorothy.....Peter Bent Brigham Hospital, Boston, Mass.
Sayles, Marie.....Hurley Hospital, Flint, Mich.
Schwamb, Mrs. Charlotte Raymond..Boston Dispensary, Boston, Mass.
*Sell, Annette.....Western Pennsylvania Hospital, Pittsburg, Pa.
*Shervey, Mabel.....302 W. Elm St., Chippewa Falls, Wisc.
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*Swanson, Frances.....Montefiore Hospital, New York City
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†Talversaari, Esther.....Englewood Hospital, Chicago, Ill.
*Teachout, Winifred.....Bridgeport Hospital, Bridgeport, Conn.
Terman, Naomi.....Nurses Home, City Hospital, Akron, Ohio
*Thiede, Gertrude.....Route No. 3, Two Rivers, Wisc.
*Thomas, A. Janette.....Montefiore Hospital, New York City
*Ticknor, Dorothy.....St. Louis Maternity Hospital, St. Louis, Mo.
Tidwell, Inez.....Nurses Home, County Hospital, San Diego, Calif.
*Torgerson, Alda.....Seattle General Hospital, Seattle, Wash.
Unruh, Irma.....Henry St., Settlement, 79th St., N. Y. C.
Vaughn, Margery.....Battle Creek Sanitarium, Battle Creek, Mich.
Victor, Sister Mary.....St. Mary's Hospital, Rochester, Minn.
Voss, Ruth.....Pokegama Sanitarium, Pokegama, Minn.
Walker, Ruth.....824 Central Bldg., Seattle, Wash.
*Wall, Sister Gonzaga.....Charity Hospital, New Orleans, La.
*Warren, Eleanor.....83 Broad St., Westfield, Mass.

Watson, Ruth.....Royal Baking Powder Co., New York City
Whipple, Bertha.....University of Missouri, Columbia, Mo.
Whirlow, Gladys.....1508 Hinman Ave., Evanston, Ill.
*Weltman, Marna.....926 Whitlock Ave., New York City
Willard, Dr. Alice.....157 Bloor St., West Toronto, Canada
†Ylvisaker, Mrs. Eva.....Children's Hospital, Cincinnati, Ohio
Zanger, Dorothy.....St. Mark's Hospital, New York City

* Junior Members.
† Associate Members.

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